WIRELESS MAN

Reminiscences of a Wireless Operator at Sea and Ashore

1914 - 1928

by

George Wedemeyer

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FOREWORD

This is a superb story, nicely told and loaded with human interest. As curator of the American Merchant Marine Museum at the U.S. Merchant Marine Academy, it is my pleasure to introduce it with this brief foreword and to wish the volume well. The museum is proud that George Wedemeyer permitted us the worthy task of publication. I am quite confident that this manuscript will appear in a more "bookish" form some day. It is made of the true stuff of history, and represents a slice of our past that should be remembered and recorded properly. There are all too few books featuring maritime history in our libraries these days.

American ships are featured in this work, from Mr. Wedemeyer's earliest voyage on the Panama Line's COLON, an historic ship in her own right, to his trips as radio operator on three U.S.-flag vessels. His account gives the nuts and bolts of life on a merchant ship. We are fortunate that his powers of observation as a young man were so fine, and that his memory of these events is so excellent. There is much source material here not only for the hard-working marine historian, but for a dramatic novel as well. Even the social historian will be interested in the tales included herein. They are lively and appealing.

We thank George Wedemeyer for entrusting his life's story to our museum to record.

Frank O. Braynard

September 1987

INTRODUCTION

ABOUT THE AUTHOR

I am George Wedemeyer of Wedemeyer Electronics Supply Company, Ann Arbor, Michigan, where I was born on July 7, 1902. While I have traveled widely and lived in various parts of the country, I have always had a home in Ann Arbor. I am still active in the operation of my company, which I started in 1927. That was the year Lindbergh flew across the Atlantic and people were playing "Ain't She Sweet" and "Ramona" on their phonographs. Those lucky few who had radios were hearing them.

Our company has made good progress and steady growth under the excellent direction of my son, G. William (Bill) Wedemeyer, who has been our company president and general manager for a good many years. I am recording this on April 12, the date in 1912 that the great ocean liner TITANIC sank after hitting an iceberg in the North Atlantic. This event made a great impression on me as a boy. The great loss of life would have been worse had it not been for the then quite new system of wireless, which played such an important role in the rescue operations.

As it turned out, wireless became the turning point in my life, quite without my realizing it, when I got my first amateur spark gap wireless transmitter and receiver in 1914. By 1920, I had advanced considerably in my technical knowledge and skill as a code radio

operator--wireless operator, as they called them then—and had obtained my first First Class Commercial License. This qualified me for my first job as a wireless operator aboard the United States Shipping Board vessel PULASKI. I was wireless man on the ocean freighter ELIZABETH in 1922, and became an operator on the Great Lakes iron ore carrier, W. H. McGEAN in 1923. All were spark wireless installations which were still in general use on most ships at that time.

To back up for a moment: By 1919, following World War I, amateurs were increasingly using DeForest three-element vacuum tubes, called audions, to increase their receiving range. They were also using them in transmitters, which gave ever more efficient transmission and replaced the original spark gap wireless. They were soon to discover that voice could be transmitted on a practical basis on these continuous wave transmitters and all at a fairly reasonable cost. It wasn't long before the idea was conceived that if a fairly powerful voice transmitting station could be built, it could be used to broadcast generally, putting out news, weather and entertainment. Both KDKA, the Westinghouse Electric Company at East Pittsburgh, and WWJ, the Detroit News, claimed they were first on the air with general broadcasting programs in 1920. (Both of them were playing, among other things, "Avalon" and "Love Nest," popular tunes at that time.) As more and more broadcasting stations came on the air, there was an ever increasing demand for radios to receive them. These radios had

to be designed and built, wholesaled, retailed, installed and serviced. By this time, they were calling it radio instead of wireless and a whole new industry was born.

Then came network broadcasting with scheduled programming from which a new kind of advertising emerged. While all this was going on, the amateurs as well as the factory research people were developing more and more applications involving radio circuitry, such as frequency modulation transmission, which was not blotted out by static like ordinary radio.

Also, two-way radio systems were developed for police and other emergency uses as well as for aircraft, i.e., aircraft from the plane to control. Then there was a better development of sound amplifiers, which were forerunners of our modern public address and paging systems.

In brief, I was an amateur for many years, starting in 1914, and a professional spark wireless operator on three different ships, starting in 1920. I was the design engineer and production man in two manufacturing operations; helped build and operate two very early broadcast stations; did some announcing; sold, installed and serviced radios of all types in the Ann Arbor, Wyandotte, Detroit and Monroe, Michigan, areas; and taught in the old Federated Radio Trade School in Detroit.

All this I did before going into business for myself in a rented location in Ann Arbor in 1927. Dun & Bradstreet reports our company as having started in 1926. Strictly speaking, that was true because I did take orders for and built and sold custom radios and did service work out of a basement workshop in my home the year before.

So, my total business career extends over a period of sixty years, during which time—between my amateur activities, technical work, various business activities (including trade association and government relations work) and promotion of industry seminars—I have met and done business with and known, literally, hundreds, if not thousands, of people in just about every conceivable social, moral and intellectual walk of life, in and out of business and government. I have steadfastly refused to run for any elected public office although I have been active in Chamber of Commerce activities, having been president of the local Chamber, worked at a national level, and served both as president of the National Electronic Distributors Association, and national president of the National Association of Wholesale Distributors, now a federation of 115 trade associations. Also, I have had many contacts with elected officials, mostly in Washington, but never on a partisan or political party basis. Sometimes I had a few frustrating experiences, but usually I managed pretty well and was well received.

Out of these many contacts I have encountered many interesting people and had some unusual experiences, some of which I shall try to describe as we go along. I have often been told by many of the old-timers in our industry that they do not know of anyone else who started with wireless as far back as I did and continued on through without interruption as our industry developed. I am still actively in it today.

CHAPTER I

A TRIP TO PANAMA -- MY FIRST EXPERIENCE WITH THE WIRELESS

I think it's time for me to tell how I got started in the radio business. One day in 1910 or 1911, my father came home and announced that he was being sent again to the Panama Canal Zone. (He had been there on official assignment previously.) This time he was going to take my mother and me along with him. As a boy, I was overjoyed. I had always liked to travel and see the world or any part of it that I hadn't seen before - which was anywhere.

As a small boy I frequently ran away from home--not because I was mad at anybody or anything but simply because I wanted to see what was way up or down the street, or away from home. One day I made it all the way from my house at the corner of Elizabeth and Kingsley Streets across from the St. Thomas Catholic Church all the way up State Street--almost to the University of Michigan Main Campus. There was a big rock in a vacant lot quite close to the sidewalk at that time and I climbed up on it and was having a perfectly wonderful time looking at things. There was a lot of horsedrawn traffic and people walking back and forth, students and other people, and I was enjoying the scenery greatly. Pretty soon, a neighbor came along and looked at me, very astonished, and said, "Why Georgie, what in the world are you doing 'way up here?"

And I said, "Just looking at things."

And she said, "Well, does your mother know where you are?"

And I said, "No." She Said,

"Well, how'd you like to walk home with me? It's about supper

time anyway."

And I said, "Okay," and slid down off the rock and walked back with her. I remember that it seemed an awful lot farther back home than it did on the way out, when I kept looking ahead for new sights and new things, having a great time as I saw and passed them.

Now I want to tell you a little bit about my parents. My mother was born in Kalamazoo, Michigan. Her father was from Germany; her mother was born in the United States, but was of German heritage. My father was born on a farm west of Ann Arbor, in Lima Township--that would be south and a little bit west of Lima Center. He attended a one-room wooden country school where, I was told many years ago by people who knew him, he was a brilliant student and even sometimes helped the teacher instructing other pupils in the class. He wanted very much to go to high school and college, which was a little unusual for students from that school. Most of them lived on farms, which were the centers of their lives. That's where they worked, after getting a very rudimentary education. My father did make it through Ann Arbor High School and the University of Michigan Law School in spite of considerable opposition from his father, who thought that a healthy, strong young man should be working in the fields and not wasting his time on education. (My father was a big man, particularly for that era. He was well over six feet tall and well proportioned.)

After law school, he began practice as an attorney and eventually

joined the law firm of Wedemeyer, Kavanaugh & Burke in Ann Arbor. Early in his career he aspired to enter public service. He was elected school commissioner and served very well in that capacity. Many of the old-timers who had met him as school commissioner told me what a wonderful man he was. Later he was sent down to South America as an American consul to the country of British Guiana. He was stationed at the town of Georgetown, down in the area of the Equator. It's a hot, moist, sickening climate loaded with fever, and my father spent a very miserable time there, but he served out his assignment faithfully and completed it although he was sick a good part of the time. Later he was sent to Germany on some official business--I don't know what it was—but he took my mother with him. He spoke German fluently in several dialects and my mother could understand and speak German tolerably well. However, they never spoke German to me or my sisters, which we all later regretted.

My father was also sent to the then-territory of Alaska by the federal government. Again, I don't know exactly why, but he made a rather exhaustive study of the whole territory and came back highly enthused about it. By this time he was a United States Congressman and he introduced a bill on the floor to get Alaska admitted as a state. Of course, he was over 60 years too soon and most of the people didn't know what he was talking about. Then later he was either chairman, or a very important representative, of a government commission

that was involved with the construction of the Panama Canal. He made several trips to Panama on behalf of the government. In some respects, I don't know precisely what his obligations were. He had been there two or three times before and he didn't like the climate; it was tremendously humid and a lot of people were dying of fever and malaria and one thing and another. But he felt obligated to fulfill his mission, and apparently he did it very well.

Anyway, this is the trip that my mother and I went on with him. First, we had to go from our house down to the depot, which wasn't too far, in a horsedrawn hack. We had our suitcases with us; a trunk had been picked up by a man with a dray a couple of hours before and brought down to the depot. We took the train out of Ann Arbor heading for New York, and we crossed the Detroit River on a car ferry. This was many, many years before there was a tunnel under the river for railroad cars, and a lot longer before there was one for automobiles. We ate in the dining car and that was a big thrill for me, and of course we slept on the train and that was another tremendous experience for a small boy. Eventually we arrived in New York and I was again awesomely impressed by the vastness of the city, the big buildings, the enormous amount of traffic (although there were very few automobiles then, there were some, and they made a lot of noise).

We finally got aboard the ship that was to take us to Panama, called the COLON. It was owned by the Panama Railroad, which in turn was owned by the United States Government. It and a sister ship, a good deal like it, made weekly trips--one, one way, and one, the other--to the Canal Zone carrying supplies and people of various types back and forth. This was not a great luxury ocean liner. It was a very sturdily built medium-sized ship, a combination cargo and passenger vessel, with two hatches forward and two aft, and a pretty good sized cabin in the middle for passengers. I don't know how many passengers it carried, but a pretty fair amount. I was intrigued by the loading operations and watched with fascination as the boom swung over to the pier and picked up cargo in the nets and lowered it into the hold. The ship was of steel construction, well braced and very seaworthy because they usually encountered a lot of rough weather on that trip. From Cape Hatteras on, anything can happen and frequently does. There were some regular railings that were removed when they were in the way of the boom's swinging the loads into the hatches. These sections were taken out during loading and then replaced. They were made of steel tubing and they were very, very strong, with a teakwood rail on top, and held in place by very large bolts at each end so that they could withstand a heavy sea.

Finally, the crew got the cargo loading completed and put on the hatch covers, which were great big, thick wooden sections that took four

men to handle. They fit into a steel frame, and the whole thing was covered with canvas. Then tie bars or steel strips were put across them and they were anchored on each end and battened in with wedges very tightly to make the cargo hold waterproof and very strong at the same time.

We sailed late in the day, and as we went out of the harbor it began to get dark. The fantastic electric signs of New York were displayed so that the ships could see them and, I guess, people in the other parts of the city could see them. This was long before neon--these were all just plain incandescent electric light bulbs, thousands of them in different colors, worked with mechanical devices to make it look like water pouring out of a bottle or whatever, and it was a very fascinating sight indeed. I don't think there was anything else anywhere in the country, perhaps in the world, at that time that equaled it.

Pretty soon it was time to turn in for the night. Now, our cabin was not too big--none of them were on this particular ship. There were two good-sized bunks, one above the other on one side, and then there was a small one on the other side. My mother and father each occupied one of the bigger bunks and I had the small one.

The next day when we got up, I was again quite fascinated by the whole thing--eating on the ship and watching the waiters. There was

some motion to the ship and at first it didn't seem to bother me or anybody else very much. But then I began to hear people talking about getting seasick—I didn't know exactly what it meant, but of course later I found out. I had a great time going all over the ship and watching the sailors, admiring their nimble actions and cleverness in handling lines and climbing ladders and all that sort of thing. There was one sailor in particular whose job was to shine the brightwork, as they used to call the brass, and I would follow him around part of his route every day and talk to him. He was a nice fellow and very patient with me. I asked him a lot of foolish questions about the ship and the sea, but he always answered them, as I remember, quite vividly.

This particular ship had a wireless transmitter and receiver, which was historically known as spark wireless. (It was the kind that was used on the TITANIC and until the TITANIC disaster nobody had heard too much about wireless.) Wireless was in pretty good operation at the turn of the century, but it was new and expensive and only relatively few ships carried such equipment. It was, as I said--to be slightly technical--what we called spark wireless. It was the original Marconi type of transmitter. Transmission was accomplished by generating a very high voltage through a transformer. This voltage jumped across two metal electrodes or rods, referred to simply as the spark gap. There were other components supplementing the spark gap, but basically, the

aerial consisted of several parallel well-insulated wires, or wires well insulated on each end on spreaders supported between the ship's mast, all connected together down to one side of the spark gap, and with the other side connected to the ship's hull. Whenever a spark jumped across the gap a wave went out into space in all directions, and with suitable equipment another ship or land station could pick up the signal. By using a telegraph-type key to control the primary power going into the spark gap transformer, the spark could be made into long and short dots and dashes of the telegraph code. Thus messages were sent back and forth from ship to ship or ship to shore.

As a small boy, I naturally was fascinated by the wireless room and hung around a great deal at the doorway looking in. It had a door that opened on to the deck. I was fascinated by the sights and sounds and odors of the wireless room. First there was the rising whine of the generator as it was turned on to operate the power for the transmitter, then a loud crashing. The blue sparks had a very loud, somewhat musical sound quite impossible to describe adequately, but something like the sound of a hundred trumpets together on one note. The sparks did something to the atmosphere within the cabin, giving off a pleasant odor I had never experienced elsewhere, referred to (rightly or wrongly) as ozone. The total experience of sights, sounds and odors, plus the impressive appearance of the equipment with its polished brass and

copper work, was to me a truly magnificent experience. I hung around that door of the wireless room for hours, pestering the operators with endless questions. They were most kind and tolerant of me, perhaps because my father was a congressman.

One day, the chief operator patiently explained how the equipment worked. When the transmitter's spark was depressed, waves went out in all directions from the ship's aerial, weakening as the distance away from the ship increased—something like throwing a pebble in a mill pond and seeing how the waves gradually diminish as they go outward. Sometime after that the chief operator asked me if I would like to come in and operate the transmitter. That was the most wonderful thing that had ever been said to me up to that moment. He sat me down in his chair, had me pull the starting lever of the motor generator slowly upward and on, and then actually let me work the key and see the beautiful crashing blue sparks occur under my control. (I'm sure he had the aerial disconnected so that I might not send out some needless interfering signals.)

As we headed south and were about even with Cape Hatteras, the water began to get a little rough, which it frequently does in that area. It gradually worsened and people began getting seasick, and suddenly we were struck with a particularly violent hurricane. It lasted 48 hours and I heard the captain tell my father that the winds exceeded 110 miles per hour. I don't know whether that was the constant speed or the highest speed, but it was an awful lot of wind.

I recall that we would plunge into a wave with a boom, maybe two or three in a row, and then moments later the stern would rise out of the water so that the propeller would have no resistance and would vibrate intensely, making the whole ship shudder. I learned many years later that while all this was going on, the engineers down below were desperately trying to cut back on the steam when the props were out of the water, to reduce the strain on them and keep them from breaking. At that time the word metal fatigue was unknown, but these men did know that if a propeller shaft vibrated long enough, sooner or later it would crack in two.

I was lying on my bunk in our cabin, quite sick when an old sailor came in to shut the deadlights, those heavy metal porthole covers, fearing that the portholes themselves might break in the heavy sea. He said to me, "Sonny, I've been to sea for 20 years and I ain't never seen such a sea, and I'm gonna hold you up so you can see it, 'cause you ain't never gonna see another one like it." Well, he did and he was right. I saw waves like church steeples riding on top of the bigger waves with the spindrifts blowing off the top of them--an incredible sight. And though I was in many storms years later, I never saw waves that approached those.

Along in the afternoon of the second day, an enormous wave came crashing over our port bow and smashed the rounded fore section of the main deck. That was where the dining room was, and it stove in like you'd hit a shoebox with your fist. This bulkhead was made of

steel plates as thick as your hand, riveted together. A great deal of water came in and flooded the companionways with a couple of feet of water, which began pouring in over the threshhold of our cabin. I was quite sure I would never see home again. Somehow, we made it and, as they say, "limped into Colon" three days overdue, given up for lost.

The intensity of the storm had been beyond belief. All of our lifeboats were gone, the wireless aerial was gone, the removable railings that were bolted in so securely were gone. The heavy teakwood rail in front of the wheelhouse was split in two like a matchstick. So tough was the teak that I was unable to cut off a small splinter for a souvenir with my very sharp pocket knife. The wooden hatch covers were all still in place, held by the strong steel straps, but not a shred of the canvas that had covered them was left.

As I recall, we were in Panama about two weeks and saw all of the most discouraging elements and details of the incredible job of building the Canal. We were guests of Colonel Goethals, who was in charge of the total project. We traveled about in his private gasoline-driven railroad car, which received quite preferential treatment, and we saw everything. The total project was, even by today's standards, simply staggering--it would have been even if it had been attempted in a temperate climate. The heat was oppressive, the frequent rains incredible in their intensity and volume. This had adverse effects on construction, but worst of all was the dreaded

fever sometimes described as malaria or yellow fever. (My father, with the light skin and blond hair of his German ancestry, was highly susceptible to the fever compared with others of darker skin.) Whatever it was, it was incurable at the time. This, of course, was the problem the French had before we took over the building of the Canal. Today, they have vaccines and sanitary measures to make it quite possible to live satisfactorily in that region.

Eventually, my father completed his work in Panama, and it was time to go back up north to New York again. Our ship, the COLON, had been completely restored from its hurricane damage. It had all new lifeboats and the staved-in forward section on the main deck was completely replaced. There were new hatch covers--that is, the canvas parts were new, the radio aerial was new, and everything was as shipshape as it possibly could be. It looked like a brand new ship. They did a remarkable job of getting so much work done, I thought, in a couple of weeks.

On the way back, things were fairly routine. My good friend, the chief wireless operator, was very kind to me. He called me in one day and said, "You know, you did have the opportunity of pressing the key and seeing and hearing the sparks, but you have never heard an incoming wireless signal. They are not very loud and they come in on these headphones." As you know, a headset is a pair of headphones, one for each ear. He had tuned in some station that was not addressed to him

and he put one headphone against my ear and kept the other against his own ear in case something important should come along. This permitted me to hear the dots and dashes of a transmission of wireless, the first I had ever heard and another very great thrill indeed.

We did not encounter any storms. The only unusual thing was that, as we approached New York, heavy fog set in and we had to slow down, blow the ship's whistle and proceed carefully. I was quite impressed with the difference between being on the open sea, apparently limitless and going on forever and ever to the horizon in all directions. In a fog, your vision is limited and you feel like you're inside a bowl of milk.

When we got back home to Ann Arbor and my parents, of course, told the neighbors and friends about our experiences, some of them would say to me, "Well, George, I understand you were in a pretty big storm on the ocean."

And I would say, "Yeah, we were in a pretty bad storm but we got through that all right. But the best thing was that we had wireless, and the wireless operator let me run the wireless and he let me make it go and he let me hear another ship coming in on his headphones. And when I grow up I'm going to be a wireless man on a ship."

Of course, my parents paid little attention to it, figuring it was just another childish expression like, "I'm going to be a cowboy" or something of that nature. But nobody ever talked me out of it. I did become a wireless operator on a ship, on several of them as a matter of fact. But before that, I had to become an amateur and learn all the way up from zero.

CHAPTER II

BECOMING A HAM OPERATOR

an aerial, the crystal rectifier detector and a headphone, all hooked up in series with the aerial and ground. If a strong enough wireless signal came along, you would hear it in dots and dashes. That was the crudest outfit I could put together. I could hear Roger pretty well and I could also hear the University of Michigan, which had a very powerful amateur station. There were a few stations licensed for experimental purposes, usually to universities, and they had extra power so the University of Michigan with the license call, 8XA, came in very strong.

Along about the same time, I became interested in electricity in general. I started with crude experiments with static electricity, where we poured melted resin in a pie tin and rubbed it with a silk handkerchief to make static electricity and perform various experiments. I went on from there to electromagnetism, where we would wind insulated wire around a nail or a spike and put current from a few dry cells through it, making the nail become an electromagnet, which is the basis of the telegraph. I read a good deal and kept doing these simple experiments and soon learned the fundamentals of direct current and the effects of magnetism, static, and so on, at the very lowest level.

Directly across the street from us at that time lived a family by the name of Shankland. They had a son, Rodney, just my age. Like me (only perhaps more so), he was an inquisitive kid, especially when anything technical was concerned. We had read that alternating current was entirely different from direct current and that the commercial telegraph lines that ran along the railroad used direct current with a single wire for one-half of the circuit and the ground or earth

for the other. We discovered that our houses did have electricity. (Everybody in the neighborhood did not have electricity at that time.) It was operated with the same kind of 60 cycle, 110 AC that we have today. We reasoned that we could use one side of the house wiring as one conductor for our DC for a telegraph system between our houses, and that the DC would in no way interfere with the house's circuit operation. We could use the ground for a return circuit. In this way we would not need all that wire to run from my house to his across the street and back twice. We would only need one wire and use the ground for the other.

Our logic was flawless, up to a point, but we didn't know that one side of the AC was grounded, to say nothing of the very high voltage on the other side of the stepdown transformer that fed the 110 AC into our houses. So we took a real telegraph sounder that I had acquired previously and hooked that up with one side of the circuit of the AC and the ground. We didn't expect anything to happen at that point, and it didn't because we had unknowingly connected the grounded side of the AC line. We made a rather crude but workable sounder of sorts for Rodney's use with magnet wire wound around a nail driven into a small piece of board. Then we cut part of a Nabisco Wafer box which was made of magnetic metal, bent into shape so that it would be over the head of the nail and would be pulled down when the DC current passed through the magnet wire, and in this way act as a crude sounder. The battery of dry cells for the DC power was already hooked into the circuit at my house. Incidentally, automobiles at that time frequently used

dry cells for ignition which were discarded out the back of the garage when their voltage dropped. We would collect them, take them home, heat up a large nail on a flame on one of the gas burners of our gas stove, press the hot nail with a pair of pliers and push it down through the tarlike top of the dry cell, making a hole way down inside (usually several holes). Then we would pour vinegar down the holes and very soon the battery would be up to full power. It didn't last very long but it was okay as long as it did.

Over at Shankland's house we set our homemade telegraph sounder on a wooden sinkboard in the kitchen, as I recall it. We connected one side of the circuit to one side of an AC outlet and then Rodney reached over with a bare end of some magnet wire to make our ground connection to the water faucet. As he touched the wire to the faucet the whole works went up in a ball of fire with a fairly substantial explosion, melting our would-be sounder into a glob. Incredibly, neither one of us was hurt in the slightest. Shankland calmly said, "We must have done something wrong," demonstrating the attitude of a true research scientist (which was a sort of a forecast of his future, because he did become a research man in later years). When I opened my first place of business in 1927, Rodney Shankland was my very first employee. He knew as much about radio as I did and a whole lot more about a lot of other things. In time he received his Ph. D. in chemistry from the University of Michigan and went to work for Standard Oil of Indiana. He is retired now and usually visits us during his homecoming football game at Michigan every year. By his retirement, he was Director of

Research of the entire division of Standard Oil of Indiana and still does some consulting. He is our first and most renowned Wedemeyer alumnus.

I should add that we did eventually collect enough odds and ends of all kinds of wire to run a second line across between our houses to have a successful telegraph line--all of which proves that successful people are unendingly persistent. We kept up our two-station telegraph line for some time and we used the American Morse Telegraph Code, which is different from the Continental Morse Code used in wireless. We used the code employed by the telegraph companies in their type of telegraph.

All this time I never got over my secret ambition to someday be a wireless operator on a ship. This looked, at the time like a tremendously difficult goal, which in a way it was. First, I had to develop into a really good amateur, have a good amateur station and the proper license, and participate in various activities. And there was an enormous amount of technical knowledge that I would have to acquire and be conversant with, in addition to government regulations regarding wireless performance and procedures. And most of all, I had to be able to receive 20 words a minute in Continental Wireless Morse Code, which seemed quite impossible at the time.

Becoming proficient in Morse Code was the most difficult part. I got hold of an electric doorbell, disconnected the bell and readjusted it so that it was just a buzzer (a pretty good sounding

buzzer). I acquired a discarded telegraph key from Western Union. So I had a real good telegraph key and a buzzer and I would practice, starting out very slowly, of course, learning the whole alphabet with a dot and dash for A, and a dash and three dots for B, and so on, all the way through the alphabet. Then I learned the numerals and some of the punctuation marks and so on. It was a very slow process. The greatest difficulty was that while I could spend endless hours practicing sending--and kept picking up speed—I seldom had anyone that could send to me. If I had had another amateur in the same position who could sit down beside me and send code to me slowly and then gradually pick up speed, that would have made it relatively easy. However, that was pretty much out of the question, and I just kept practicing and practicing with my transmitting and improved my technique and accuracy.

I finally reached the point where I had memorized all of the signals and numerals and so forth. I knew them by heart and could transmit pretty decently at a moderate rate of speed. As far as picking up speed receiving, which was most important, I had to do that by simply sitting for endless hours listening in on the marine ship band. It was a very wide band coverage. You could put on your headphones and sit there and pick up everything from a strong nearby amateur incoming signal to the ships on the Great Lakes if you had a good enough receiver and a good enough aerial (which, by that time, I had).

The aerial was very important because, other things being equal, the better aerial you had, the better reception and transmission you

got. And, of course, I was limited by my house—the whole lot was only a hundred feet long and the idea was to get the aerial as long as you could and as high as you could (within some limits, but the limits were never such that any ordinary amateur could approach. We were much smaller than we legally could have gotten). I constructed, at one point, a rather remarkable tower, looking back at it now and not meaning to sound egotistical. It was, I guess you would say, an A-frame. There were two sides but no front and back, and it was quite wide at the bottom and tapered up to the top. I took 20-foot two-by-fours and 20-foot one-by-fours and nailed them together for the first section, and crossing pieces to hold them apart at right angles. Then I bolted them to 20-foot two-by-fours (you lost maybe a foot in the overlap). The next section up were two-by-twos; that got me up another 8 or 9 feet or so. Then I got a five or six foot piece of very strong, well seasoned oak wood and braced it to the top section. So all the way from the top piece to the ground was about 60 feet. I didn't have any place for guy wires to hold the frame up, but I managed pretty well. Because it was wide at the bottom and tapered at the top, it wouldn't tip over sideways.

I remember I bought a lot of stranded steel clothesline wire for guy wires and anchored them high up in trees. I got permission from the neighbors to get high up in theirs. In this way, I got a height

of 60 feet on that end—pretty close to the end of the lot that was within a few feet of the lot line. Then, up on my house, at the highest point, I had a couple of two-by-fours lashed together and well guyed, and got up to where it was 60 feet high on the other end. That was about as high as I could get. Then we made the aerial with four or six wires separated six or eight inches apart on spreaders and the whole thing was held between the two 60-foot towers. Each wire had a lead-in wire and they all twisted together and it came down through one lead.

Erecting my self-supporting or partially supporting A-frame tower turned out to be quite a task. I had the assistance of four Hams, (the nickname for amateur operators), friends of mine, who wouldn't think of charging anything for their time. They all stayed at my house for supper, and that was typical of Hams--the idea of charging one another for helping was just unheard of.

Signals at that time were pretty feeble by today's standards, and every ounce of perfection that you could get was important because we couldn't amplify any signals. So we know that the better insulated our aerial was the better it would work. At that time, they were wiring houses with what they called knobs and cleats. The knobs were round glazed porcelain with a nail through them and a notch, and they were such that you could insert a piece of #14 insulated wire between the top and bottom of the notch and then drive the nail into the wall or inside the attic or wherever it was to support part

of your electrical circuit. So they were quite useful for downleads because glazed porcelain is a very excellent insulator. But we needed something on the spreaders to hold the aerial wires apart, and the cleats were ideal for this. They were about four-and-one-half inches long, of glazed porcelain, with a hole and notches toward each end. You could put a pair of #14 insulated covered wires in the notches when doing house wiring, with a nail or screw in each end to hold the wires up. Cleats made excellent aerial insulators for individual wires on the spreaders at each end, and they served very well as long as they were in the clear. These items were readily available, and if it hadn't been for that, I don't know what we would have done. We couldn't afford to buy special items and there weren't too many available anyway, even if we had the money.

We had another difficulty getting the aerial lead into the house. We couldn't just run the insulated wire over the window sill and close the window on it. We would lose too much signal strength, so we adapted a porcelain tube which was used in house wiring when a wire had to go through a wall. A hole would be drilled for the tube and the wire shoved through it. These tubes were good insulators for aerial leads which had to go through the wooden part of a window frame. We old time amateur wireless and radio men had to exhibit some ingenuity in order to progress successfully.

The aerial was a very important thing and we were forever trying different types of aerials. At one time it was believed that a so-called birdcage aerial would be more efficient. In other words, you had your four wires around a hoop-shaped arrangement at each end rather than flat out on a spreader. We made one using barrel hoops, and again we had to have each wire insulated from the hoop. We never were able to discover if it was any better or any worse than the other, but we kept trying and tried everything that was suggested.

As time went by, from way back in 1914, in my most modest beginning, I continued to improve my equipment, my transmitter and receiver, by very small degrees as I learned more and kept studying. I practiced transmitting code incessantly with my key and buzzer and I spent endless hours listening with my headphones while I was studying or reading or anything else—just waiting for a signal to come by. I could, of course, recognize the amateur stations in town and close by, by their tone, their sounds, their spark--almost before they signed. This included Great Lakes land stations and ships.

The transmitting procedure was international in acceptance. When you called a station, you transmitted their call letters three times in succession, followed by the signal "DE--,da, dit, dit, dit—which meant "from" in any language; then you sent your call letters

three times. Assuming that he was in range and heard you, he would call you back using your call three times in succession, followed by DE, and then his call three times followed by the letter K. This was the international signal for "go ahead." You would then call him back as before and proceed with your message.

So I had a pretty good chance of getting all the call letters, because every time a station called, they repeated the call letters nine times, and I could pick out one letter each time around. If it happened to be one I knew pretty well, I could do it that much easier.

The commercial and the naval land stations also followed the same procedure. In listening in Ann Arbor, as I did for endless hours both on amateur and commercial frequencies, I could hear NRQ-Wind Mill Point, Detroit. And there was also a strong signal from the Canadian station VBE at Sarnia. I could also hear NRH at Cleveland with good volume. And so it wasn't long before I could recognize all these call letters, picking them out of fairly fast transmission. As time went by, by persistent effort, I was able to recognize more and more letters of the alphabet in fast transmissions. All the American Great Lakes vessels, whether freighters or passenger boats, had radios, and always started their calls with "W", while the Canadians, both vessels and land stations, began with "V". Using the same procedure

in listening to these stations that I did with the amateurs, I kept picking up more and more call letters.

It was a pretty slow and difficult process and I couldn't listen constantly because you could sit for an hour without hearing anything at all. Besides, I had to go to school, take care of my paper route, and do some other jobs and chores. All this limited the time I could spend practicing and sending on my buzzer and listening for reception of transmissions from one of the local Hams, the land stations or the ships that were calling them.

But I kept doggedly at it. I was pretty young and I was sometimes discouraged, but I was making some progress.

I might add a final word about amateurs. In recent years they have set up emergency systems and have been very helpful in disaster areas, where storms have cut off communications. Amateurs are very well organized in various parts of the country on a local, state, and even national level to meet a great many different types of emergencies. Incidentally, to become a legal amateur, you have to take an examination and get a license. You have to receive in radio code at least five words a minute to earn the lowest license, and you must have some technical knowledge. So having the lowest amateur certificate is a bit of a status symbol as compared to being just a CB operator.

There are four classifications of amateur licenses with a greater technical knowledge necessary, used as requirements for different types of work.

There was at that time, and I believe still is, a very close bond, tie, comraderie, friendship and fraternalism that's hard to put your finger on. A Ham can be a stranger in a given location and introduce himself to another Ham and be immediately accepted almost as a member of the family. I have had many remarkable experiences of that type which I shall recount as we go along. Perhaps it was the fact that Hams seldom saw each other. Now, of course, locally we saw each other and we might get together occasionally, but you didn't travel like you do today. There might be Hams from Detroit or Jackson or Lansing or Toledo who we communicated with but whom we never saw. If any one of them ever came to town and introduced himself, told us what his call letters were, he was immediately welcomed.

Then, perhaps, an even stronger bond existed among those men who were spark wireless operators at sea. I am very proud and happy to belong to a group known as the Society of Wireless Pioneers. In order to belong to this group you have to submit satisfactory evidence that you worked spark wireless not just as an amateur but commercially for pay before 1925. Since I got my first ship in 1920, I was easily eligible. These are wireless men, not just plain radio men, and on top of that they were sailors. Between the bonds of the

BE IT KNOWN THAT

The Society of Wireless Pioneers

HAS HONORED

GEORGE EDWARD WEDEMEYER

With **LIFE MEMBERSHIP** in this pioneer organization. He has provided records, satisfying our Membership Committee of his qualifying requirements which include past experience as a *professional* Wireless Telegrapher.

Dedicated – to the men who "went down to the sea in ships" as Wireless Telegraphers – and all those who have earned their living "pounding-brass" at Wireless or Radio Officers since the Days of Marconi.

PRESIDENT EMERITUS

PRESIDENT

COUNTERSIGNED—EXECUTIVE VICE PRES.

1920 - SS Pulaski / KUQL

DATE

"PIONEER" Member

LIFE CARD MEMBER No. 1885

sea and the wireless--both amateur and professional--it's an incredible relationship and it's a very happy one. There's no way this group can grow because all the men that worked at spark wireless prior to 1925 are either in the club or have passed on, and there just aren't any possible new members. It is a worldwide organization which prints a quarterly magazine, a report with some very interesting stories recounting experiences of different members during their careers. I enjoy that a great deal.

CHAPTER III

A SHORT HISTORY OF THE WIRELESS AND THE LEAGUE IT INSPIRED

Before going further, it is important to go back to the beginning to how wireless developed. Guglielmo Marconi did not invent wireless, although a lot of people think he did. A lot of people also think Lee DeForest invented radio, but he didn't. Marconi developed wireless and made it possible by using and improving devices already known, and possessed an incredible persistence in the belief that he could develop a communication system without wires--which he eventually did. Not only that, he also was able to build a worldwide organization with separate companies in many of the world's leading nations. He was, in short, an inventor, endless researcher, planner, organizer, salesman, diplomat, leader of men, and above all, a practical and realistic man with the gift of persuasion.

At a very young age, Marconi became interested in the theories and experimental apparatus first used by Heinrich Hertz in 1887. Hertz believed, and, I think, convinced himself mathematically that it was possible to generate electro-magnetic waves that could be propagated through space. He was able to demonstrate this theory by an electric spark—making a spark jump across a gap—getting the high voltage from an induction coil. Then he used a length of wire made into a loop with the two ends very close together. When the spark was crossing the gap and this loop was some distance away, a very tiny spark would jump across the little gap of the wire. This, he contended, was caused by picking up emissions of eloctromagnetic waves through space from the spark coil to the loop.

This experiment eliminated any possibility that what took place was induction, another phenomenon that could conceivably be involved. The spark jump didn't work over any great distance, but as far as Hertz was concerned, he had proved his theory. There is no record that he ever gave a thought to developing his experiment as a means of signaling or communication.

Hertz subscribed to the theories of behavior of light as expressed by Clerk Maxwell of Ireland and assumed that his electromagnetic waves would behave as light waves--which they do up to a point. As far back as 1878, Professor David Hughes discovered that if the discharge from a lyden jar--that is, a modern day capacitor or condenser--was applied to loose filings of zinc and silver, it would cause them to suddenly cling together. It was later found that copper filings between metal plates were non-conductors with a certain DC voltage applied across them, but they became conductors under the influence of a lyden jar discharge.

These and other experiments led to the idea of the coherer, which was developed by a Professor Edward Brandley of Paris in 1881. He demonstrated that dissimilar metal filings in a glass tube with contacts at each end would not conduct direct current electricity. But when signal waves from a Hertz spark coil transmitter were emitted and directed through the glass tube, the filings would stick together, cohering enough to increase the conductivity of the DC current through them, enough to operate a sensitive relay

and also for a tapper to strike the tube and loosen the filings again. (Marconi invented the use of the tapper.)

Crude as this was, the coherer was the first detector used by Marconi in his wireless receivers. Again, there is no indication that Professor Brandley had thought about using the coherer for communications. He made his observations for purely scientific reasons and I guess almost everything that we eventually enjoy in mechanical and electrical devices started out as pure science on the part of somebody, somewhere.

Then in 1895, in St. Petersburg, Professor Alexander Popoff used a coherer, a relay and tapper, and a battery connected to an aerial on the ground for the purpose of detecting approaching thunderstorms. When heavy static from lightning causes electromagnetic waves to go out in all directions, they travel quite a way. The Professor was able to pick these up because they would activate his coherer, and that was a warning that there was a thunderstorm coming. He actually had a wireless receiver and didn't know it. It didn't occur to him to use a Hertz spark coil for a transmitter and thereby have a system of wireless communication.

Marconi was not a particularly good student at school, except in physics, at which he excelled. As a matter of fact, he failed to pass the entrance examination for the University of Bologna. Although his parents were not extremely wealthy, they were well-to-do. They lived on a pretty good-sized estate with a big house and

vineyards. Marconi's father thought he ought to do something more useful than play with his wireless experiments. But his mother, who was English, took his side and he managed to keep going. He transmitted signals in an attic of his house from one room to another through the walls, observing that the wall didn't block the signals as they would have a ray of light. He discovered, among other things, that if he connected one side of a spark gap to a wire up in the air and another to a plate buried in the ground, it put out a stronger signal or impulse and would run a greater distance. He also performed an experiment on his father's estate in which he put a receiver behind a hill and a transmitter on the other side. The receiver got the signal, which either went through the hill or over it. The hill didn't block the signal as it would have blocked a light wave. During this peried, Marconi would accept the light theory up to a point, but if somebody said this or that wouldn't work, he'd try it anyway—and sometimes it did work.

As he was able to build more powerful transmitters and get greater distance, he challenged the belief that as soon as a ship was over the horizon, it wouldn't be able to hear a signal because the earth itself would block the impulse. He soon proved that idea wrong by simply sending a ship over the horizon and continuing to communicate with it by wireless. So he was quite a persistent man. When he finally got a working wireless system and tried to sell it to his own government, they turned him down. His mother had con-

nections in England, so he was able to get his system patented there, even selling some. Then the Italian government became interested and began using Marconi's inventions on their own ships. The rest was a matter of worldwide development.

In 1901, specifically on December 6, Marconi arrived from Europe and set up receiving aerials at St. Johns, Newfoundland, using kites and balloons. Marconi had a rough time with bad weather, but finally got a signal across the ocean from Europe. It was three dots, the letter "S"--dit, dit, dit--and Europe received it, sensational news at that time.

(There is in Rome a small statue of Marconi, which I have seen. I also had the pleasure of meeting his daughter, Electra, at a luncheon at the Waldorf Hotel in New York City, celebrating 25 years of broadcasting.) From then on, there were all kinds of technically-minded adventuresome young men (and some young women) who wanted to build small low-powered wireless transmitters and receivers and thought it would be a wonderful experience to talk to a friend across town or in the next town without any wires. Of course there had been a few telegraph clubs around the country way back in the early part of the century, neighborhood groups, using telegraph lines between each other.

In 1914, there was a small band of wireless amateurs led by Hiram Percy Maxim, whom I had the pleasure of knowing. (He passed

away several years ago.) Maxim was a successful businessman and a very active person with a great knack for leadership. He and a friend named Clarence Tusca formed the American Radio Relay League, (ARRL) so named because Hams had a network of stations that would send a message from one station to another, on schedules all over the country.

The League published a monthly magazine called the QST, which represents international code signal simply meaning "general call" or "Here comes something of general interest to everybody." It would be like "Now Hear This" or a public address man saying, "Ladies and Gentlemen, Your Attention Please." Therefore, it was a very good name for an amateur radio organization's magazine.

Hiram Percy Maxim was high-powered, but always nice. He could get things done, but never seemed to be overbearing or pushy. He had the amazing faculty of getting things organized the way they should be and putting over various programs. For example, we would all be experimenting on a certain phase of communications of some type. There would be an article in "QST" giving us some general ideas and then everybody and his brother would work on it. Within a month or so they would report back to headquarters how they were doing, and the results would be written up in the magazine. So we had remarkable nationwide organization of amateur experimenters who were doing it as a hobby but also making a great deal of technical progress. Of course, as time went on, some of them became professional engineers.

But the ARRL was a tremendous force for good and its organization was beyond belief, looking back at it, particularly from a 1980's point of view.

If you can imagine, this organization came out and said, "Now, on a certain night we want all amateurs in the United States to stop all transmission between the hours of 9P.M. and 10P.M. so that we can attempt to relay a message from the east to the west coast and back by picked amateur stations." And we would all do it without question. (A message was sent from the mayor of Portland, Maine, to the mayor of Portland, Oregon, and a response was received.) If you tried something like that today, somebody would scream, "You can't make me do that, I've got my rights and I don't have to shut up." But we cooperated and some amazing things developed that were very satisfying indeed.

Later, and for many years, Hiram Percy Maxim was president of this association. The League organized and advanced the idea of amateurs transmitting across the ocean. Years had gone by and transmitters were more powerful and capable.

They did succeed. First they sent some signals from the west coast to Honolulu, half way across the Pacific Ocean. Later there was transmission across the Atlantic towards Europe, and after that there was even transmission both ways--from America to Europe and back by amateur radio with limits of power and frequency.

Again, it took a great deal of cooperation and it made for good international relationships between Hams.

CHAPTER IV

HAMMING—AND SOME OTHER EXPERIENCES--IN CALIFORNIA

The untimely death of my father occurred not too long after my mother and I made the trip to the Panama Canal Zone with him. He was sent there again on official business and was stricken with a fatal case of the dreaded fever. Colonel George W. Goethals, who was in complete charge of the Canal project and was a friend of my father, sent him immediately to the Ancon Hospital where he was accorded the best possible treatment and made comfortable. However, after he had been there for some time he well understood that he would not recover and asked to be sent home. His wish was granted and he was put aboard the next ship for New York. But, sadly, he never made it. He died at sea at the age of 39. According to the Ann Arbor News, more than 3000 people filled the University of Michigan's University Hall (then-called) to capacity to attend memorial services for my father, "Congressman W. W. Wedemeyer, who died at sea last month while returning by ship from Panama," as the paper said. Hundreds more were turned away. There were governors and senators and congressmen, as well as clergymen. I attended alone and was pleased that no one happened to notice me or recognize me.

All this was a frightful shock to all of us, but especially to my mother, who never really completely recovered from it, but continued as best she could to make a good home for my sisters and me. I did my best to be kind to her and not give her any cause for worry or trouble, and I believe I succeeded fairly well--except

occasionally when I didn't do too well in school (I was never a brilliant student).

It was the summer following my completion of the eighth grade at St. Thomas School, which was just down the street from where we lived in Ann Arbor--in those days we didn't graduate, we just finished. I had spent all but one year at St. Thomas--the missing year I attended St. Cecilia's Day School for Boys in Washington, D.C. while my father was in Congress. By today's standards, the discipline in both of these schools was extremely severe, but they did a really good job of teaching us the three R's. They also taught us a fourth R,—religion,--so that we wouldn't have any excuse for saying we didn't know right from wrong. Anyway, it was time for me to think about going to high school when my mother announced that we were all going to southern California for the benefit of my older sister's health (at the suggestion of our family doctor) and we'd stay there for a year. I was, of course, pleased at the prospect of travel.

I don't know how mother managed it; she found someone reliable enough to rent our Ann Arbor house, completely furnished, for a year, and several weeks later we started for California by way of the Canadian Pacific Railroad. As we traveled west, we saw what seemed to me to be oceans of wheat for seemingly endless miles. And further west in the Canadian Rockies, we saw mountain scenery equal to what I was to see in Switzerland many years later. We

even stopped over at Lake Louise and saw the sights there. Arriving at Vancouver, we took a train all the way down the west coast, traveling across the states of Washington and Oregon and the entire length of California down to San Diego, almost to the border, and finally to LaJolla, about 15 miles north of San Diego, where we lived for a year. Today LaJolla is quite an exclusive area, but at the time we were there it was a small, quiet town where people of modest means could live.

I entered San Diego High School, which , of course, was quite a way down the road. A number of us went to school there from LaJolla, taking a narrow-gauge train. It was a small steam railroad which made the 16 mile trip into San Diego with a lot of stops on the way. When we got to San Diego everybody on the train somehow piled on to one single trolley car owned by this unique railroad, which took us well up into the city of San Diego and let us out where we could walk the rest of the way to school. The weather was always good. Of course, coming back in the afternoon we had to reverse the whole process. The railroad tracks went right down the middle of what was then the main street of LaJolla and continued on out of town.

One morning I just missed the train and was picked up by some people with a car who were driving their boys down the line to Pacific Beach Military School. In those days, automobiles had

running boards and they told me to hop on the running board and hang on with one hand. Of course, I had books to carry in the other hand. It was a little awkward for me but I did hang on pretty well. Instead of waiting until the car got to the next stop, which was several miles down the road, I decided I could step from the running board from the car to the step of the passenger train coach. But when I tried it, I missed and rolled over in the dust. I got pretty dirty and hurt my hand a little bit, but I got up and got back on the car and they let me off at the next station. My wrist hurt quite a bit all that day, but even so I went some distance out of my way after school to visit a schoolmate's amateur station in San Diego, and finally got on home on the late train. By that time, my wrist was hurting rather badly and my mother said, "We'd better see the doctor." He felt it and said, "Well, George, you broke your wrist and I'll fix that up in just a few minutes." So he went out in back, sawed what sounded like some slats out of an orange crate, made splints for the wrist and bandaged it. I went around with a sling for about six to eight weeks. I was very happy that it was my left hand instead of my right, because I could still practice sending the telegraph code with my right hand. I could also write, which helped me in school.

I had gotten through better than half of the year at San Diego High School when I had another misfortune, this time seriously injuring my foot. It happened on the trolley car that took us from the train uptown where we got off to walk to high school. I was

standing on the step of the crowded car (in those days trolley cars had a sort of porch on the back with a step). I was one of the last ones aboard and hanging on to a side rail. We were going around a corner when a taxicab came around and somehow caught my foot between its fender and the step of the trolley car. Fenders in those days were very sturdily made and I was thrown to the ground and rolled over and over. I remember how big the wheels on the trolley car looked to me. Finally both I and the car stopped. I was in pretty good shape, but my foot hurt. I tried to walk on it and couldn't, and I was taken to a doctor. I presume it was a doctor who worked for the little narrow-gauge railroad that owned the trolley car. The doctor bandaged my foot and gave me a pair of crutches and told me it would be quite a while before I would walk again, that I had crushed my instep. He said it was just a matter of time until all of those bones got back into their proper position, and when they did I would be all right. Well, he was correct. It was a long time and it was very painful, and I was hobbling around on crutches. I came home on the train with the conductor helping me on crutches. That ended going to San Diego High School. It wasn't too long, a week or so, before I could get around pretty well with my crutches and put up with the pain in my foot, and my mother decided it would be a good idea for me to take what was left of the eighth grade in the LaJolla Public School. This was a rather pleasant experience. It was southern California and there were "open air" windows or glass doors to hold down one side of the classrooms. These were open most of the time so you had fresh air, and

shining sun--very pleasant surroundings. The teacher was very kind to me. She knew that I'd already been to high school and I remember that she gave me an American History book and said, "Read this and think of it as a story. Don't try to memorize all the dates, but just remember the order in which the principal historical events occur. I'll ask you to write a short paper once a week in your own words about what you read." And it really was a very good idea. Later, when I checked into Ann Arbor High School, I had some credits coming from San Diego for part of the year, and I eventually finished high school in Ann Arbor.

As soon as we established ourselves in LaJolla, I managed to scrounge up some used two-by-fours, get up a mast and make an aerial. I brought along a fair receiving set and a very small spark coil wireless transmitter that had been put in one of the trunks that we brought along on the train. I was soon set up with my little amateur station. It was such low power that I didn't need a license; it would only travel a few miles anyway. It turned out there were only two other amateurs in town and they were both about as bad as I was in code speed. I used to communicate with them once in a while on a schedule. We agreed we'd both go home and listen for each other and we got along pretty well.

Most of the time I spent listening to the Naval station at Point Loma, the point that juts out into the sea and helps form San Diego Bay and Harbor. It's a powerful Naval station and I could

hear them day and night as I sat there with my headphones on. They handled a lot of traffic; every time a ship came in, whether it was a Naval vessel or a merchant ship, they would report to Point Loma and go through the signalling procedure which I described earlier. I kept picking up speed by listening for endless hours and listening to fast transmission. Sometimes the Naval station sent five letter code words. If I didn't get all the letters correct it wouldn't spell anything, so I couldn't tell how well I was doing. But I kept doggedly at it. I will never forget how startled I was one night--the transmission was going along pretty fast from Point Loma and I was copying what letters I could get down. I would get two or three in a row and then miss one or maybe four. All of a sudden I looked down and I had copied the word "coast". That was the first complete word that I ever copied at high speed. It gave me a lot of confidence.

I couldn't hear much other than Point Loma, except at night. Of course, at night reception was much better than in the daytime; it was almost mystical. Some nights I couldn't hear much of anything, but other nights it would be extremely clear and I'd get stations way up the coast--San Pedro and beyond. It was really quite wonderful because it didn't happen that way every night.

Now, we knew in those days that radio waves would go through a vacuum, and that it wasn't the atmosphere that conducted them.

George Wedemeyer, "ham" operator

La Jolla, Calif., 1916

We used to call it--I guess as a kind of colloquial expression--the ether, because there was supposed to be ether everywhere. We generally referred to it the way the industry did, as atmospheric conditions. And sometimes we could get fading signals, i.e., when a station at a great distance would come in very loud, die away and then come in loud again. Some nights you couldn't hear them at all and other nights they would come booming in with amazing volume. It was like suddenly being able to hear several times better than you normally could, being convinced that you can do this every night, and then finding it suddenly didn't work. We didn't know then why that was.

Today, scientists know all about the ionization of the upper atmosphere and the heavy side layer. They can even calculate where a given frequency will skip at a certain time of day and all that sort of thing. Of course we didn't know anything about that then, and it was quite a thrill to get exceptional reception. Even today there are wide variations from night to night or day to day, although daytime reception is pretty uniform. But the transmitters we have today are much more powerful than what we had in those days, and we also have receivers that have automatic volume control. That is, they'll hold a fluctuating volume to a fairly constant level and they'll hold a frequency from drifting, so that you just don't experience such things as fading.

While we were in LaJolla, the historic Naval vessel, USS

Oregon came into San Diego harbor, and one Sunday they permitted visitors. We all went out and visited this famous battleship; it had quite a history. I was always interested in this ship and had read a good deal about her. Of course, I looked up and eventually found the radio room. I stood in the doorway in absolute awe of the young men dressed in the uniform of the United States Navy with zig-zag electric symbols on their sleeves indicating that they were radiomen. I recall how badly I wished I could do the same thing and be one of them.

As a matter of fact, it wasn't too many months after that, while we were visiting Los Angeles that the U.S. declared war on Germany. There was quite a bit of excitement because San Diego was a naval base and had an Army camp nearby. But, there was nothing very noticeable other than increased activity and restrictions.

We weren't very bothered by the war since we really weren't too seriously involved at that point. But an order from the government came through soon afterwards that all amateur radio stations had to be closed for the duration of the war. You couldn't even have a receiving station. It was reasonable enough; it's conceivable that a spy could have a receiver somewhere and use it. Anyway, the authorities didn't have much trouble with the amateurs--they're a law-abiding bunch of people. So we put away our equipment and forgot about wireless until after the war.

The last day that we were in LaJolla I decided to go swimming down at the beach. It happened to be a stormy morning and somehow the lifeguard missed the train coming out. The beach in LaJolla was very dangerous if you got off to one side or the other, particularly the one side which was a virtual cliff. When I got there, there was a woman hysterically wringing her hands, who wanted me to save a man and two boys who had somehow gotten into the water and had been carried out. What had happened was that a couple of small boys went swimming and they could paddle around all right, but the tide took them out and they weren't strong enough swimmers to get back. There was a man who ran a refreshment stand on the cliff above the beach—he wasn't too good a swimmer but he went out to try to rescue the kids. By the time I got there one boy was hanging on to him quite a way out and I was just in time to be the big hero.

They had a life perserver there, a ring with a line on it. I swam out and shoved it to the man with the kid on his back and towed him in. I got the kid who was getting pretty close to a big cliff where there was a sign saying, "Stay 100 Feet Back From This Point." It was very dangerous because we were well within 50 feet. I got all three hauled ashore, a crowd formed and I ducked out of sight. To this day I don't know who the man and the two kids were, and they didn't know who I was. This certainly was a dramatic end to our last day in LaJolla.

On our return trip from California to Ann Arbor, my mother

very thoughtfully had arranged that we come back by way of the Santa Fe Railroad, the southern route. We stopped over at the Grand Canyon, which is a tremendous sight. We saw a good deal of the country on the way back home.

It was altogether quite a year. The stay in California was beneficial to my sister's health, and to the rest of us for that matter, because we were outdoors a great deal and could swim the year round. Yes, it was a very successful year.

CHAPTER V

A RESPITE DURING THE GREAT WAR

My family and I returned to Ann Arbor in 1917. This was during the First World War and there wasn't much I could do about radio except read about it. I read everything I could get my hands on and just tried to learn all I possibly could. I could still practice transmitting with my buzzer—there wasn't anything wrong or illegal about that—and I got to where I could really send very accurate, legible, good quality transmissions at 20 words a minute or better. Of course, you weren't tested for transmitting, but for receiving. Yet you had to be good at both, and I practiced the one thing I could practice. We read a great deal about developments, in wireless, its future, and what would happen after the war.

The war became more noticeable. Friends of mine, a few years older than myself, had enlisted in the Army, the Navy, the Marine Corps. Finally the draft came. At the University of Michigan, if I remember correctly, all male students who were in good health were, so to speak, in the Army. They all wore Army uniforms and they called the arrangement the S.A.T.C.--Student Auxiliary Training Corps, I believe. There were boys going away to camp on trains, always some excitement. We didn't have radio in those days; the only news you got was in the newspapers, and it was pretty spotty. We knew there was a war on, all right, and we never got to the point of needing ration coupons, but certain items were scarce. Sugar was difficult to find and there were various voluntary programs to cut down on the use of certain foods. It was done more or less by the distributor. He determined how much he could give the local grocer or whoever was involved. We had enough to eat and gasoline was no problem in those days—very few people had automobiles and so that wasn't anything to be concerned with.

Finally, the war did end. I'll never forget that day as long as I live. I was not in any of the Armed Forces, (I wasn't old enough to be) but I knew a great many young men who were. The church bells rang and the whistles blew. There were all kinds of steam whistles in those days. The University had a whistle, the gas company had a whistle, and all the church bells were ringing all day long. There were impromptu parades and all that sort of thing. It was called Armistice Day, November 11, because that was the day when the Germans asked the Allies for an Armistice. This wasn't at first a complete surrender, but after both sides met, it developed into one.

I get a little irritated nowadays when they move Armistice Day to some different date and call it Veterans Day. As far as I'm concerned, November 11 is Armistice Day as long as I live. It doesn't make too much difference to most people one way or another, but that's the way it was.

When the war ended, we hoped the government would lift amateur restrictions completely, but they didn't. They said you could have receiving sets but you couldn't use transmitters, and they maintained this policy for some time (I don't remember how long). But it was good to be able to put up our aerials again to listen in.

CHAPTER VI

FROM SPARK TO ARC—AND BEYOND

After the war, the one thing we could do was listen. We could run our receivers again. There were about 25,000 amateur transmitters in the nation, and of course, they were all spark transmitters. These fellows were very good. They knew that sooner or later they were going to be on the air again, and they eventually were. In the meantime, we could hear our old friends, the commercial stations, and I listened a good deal to them. But a significant new development during this time was the arc transmitter, which operated on very long wave lengths and traveled very great distances.

Not too long after Marconi got his wireless system working pretty well, and the engineers and scientists had time to investigate the subject, it was universally accepted that the type of electro-magnetic waves that were sent from a spark transmitter were "damped." That meant that the waves had a tendency to lose their strength quite rapidly after they had been emitted from the transmitter. This was because it was on alternating and intermittent current. The researchers were quite certain that if it were possible to generate a continuous and uninterrupted type of wave, that they would travel a great deal farther and wouldn't fade out so quickly. And it would be quite an improvement over spark if it could be done. In 1903, there was a man named Valdmar Poulsen, who obtained a patent on his system of continuous wave transmission using a direct current arc. The theory was quite simple; in practice it was a little more complex. Poulsen put a lot of direct current through two carbon electrodes in a circuit and would touch them together (of course, you wouldn't do it with your bare hands--the shock would be substantial). These two carbon terminals in the strong direct current circuit would be brought together and then slowly pulled apart, making a spark jump across

them continually as long as the DC was left on. This did generate a continuous wave that went out a great deal farther than anything developed previously for an antenna constructed for a given amount of power. This was a vast improvement, but still required a great deal of development. One of the difficulties was that because you were using a DC arc, you couldn't break it into dots and dashes with a key at the source of power. Everytime you would interrupt the DC, you'd have to start all over again, touching the two carbon terminals together, slowly pulling them apart and striking an arc. This was quite impractical, of course.

So the engineers would put some inductors in series with either the antennae or ground lead, and then put a key across it. Naturally, when the key was depressed, the total outgoing wavelengths would be reduced with the effect of making dots and dashes. When you heard this arc, it was a weird sound, sort of eerie in a way. It was , perhaps like a mourning dove, resembling a sort of a moaning sound:"Ah-woo, ah-woo, ah-woo." You'd have to tune around and see which one of these sounds was the dot and which one was the dash--whether it was "ah", or the "woo" because one sound was the space between the dots and dashes, while the other was the code signals. This was quite a practical arrangement.

This system was eventually destined to make spark wireless obsolete. But there was some difficulty, of course, in overcoming the highly established position of the Marconi Company and its entirely different spark system, which, of course, the arc people considered inferior.

The arc system was developed particularly during World War I for trans-Atlantic use on the big battleships. They employed very long wavelengths with substantial power. We won't go too much into historical detail about the arc system except that there was an American by the name of Elwell who went to Denmark to meet Poulsen and find out what the system would do. Eventually Elwell had the system adopted in the United States by the so-called Federal Telephone and Radio Company. It was possible to send a voice on an arc transmitter, whereas it was virtually impossible (not completely, but in a practical sense,) to transmit voice with a spark. There are many stories, one of which was that the Federal people went to the United States government and tried to sell them arc transmitters because of their improved efficiency.

Outside of Washington, D.C., at Arlington, Virginia, there was a 100 kilowatt spark transmitter--NAA-- from which we received time signals every day. It was certainly the most powerful spark transmitter in our hemisphere--I guess in the world at the time. It had tremendous towers and a triangular aerial. But NAA could not reach the west coast of the United States in the daytime in spite of all their power. The arc people wanted to demonstrate to the government how good their system was, but they were given pretty much of a hard time. The government finally said they could make a demonstration, providing they didn't do any damage! So the arc people set up a transmitter. I don't recall its power, but it was nowhere near 100 kilowatts; it was something, I am sure, well under 25 kilowatts and a rather small piece of equipment, relatively speaking. With this equipment, the arc people did reach the

west coast in daylight. This was a shocking development, and represented the eventual death knell for spark, but it didn't happen quickly—there were too many great spark transmitters all over the world. The Navy had them and eventually acquired some arc transmitters too.

It seemed like the Federal Company was in a position they could never lose. They were like Baldwin Locomotive in 1920. There would always be railroads and there would always be steam locomotives to pull the trains, so if you had stock in the Baldwin Locomotive Company you were really in a gilt edge investment. But there is no Baldwin Locomotive today. (Certainly, if the company name still exists, they aren't making locomotives!)

So, eventually the arc transmitters were enormously powerful and uniform in performance and could cover great distances. They were even competing with the cable companies, between the west coast and Honolulu and across to the east coast. By the time the First World War had ended, arc transmission had been developed to a substantial degree. The U.S. had built some trans-Atlantic stations and, I think, had built one in France. Anyway, arc transmission was an established fact of life by the time we amateurs got back to where we could listen in again. If you had the right equipment, you might be able to hear them at a considerable distance.

Before going any further, we should stop and discuss the Three Element Electron Tube, i.e. the Vacuum Tube. This was invented, or rather developed, by Lee DeForest, who has been called the "Father of Radio," and that's not too bad a description. I was in the Henry Ford Museum and overheard a teacher with a group of school kids ask, "Who invented radio?" Nobody knew and she

said, "DeForest." Well, of course he didn't invent radio, but he certainly contributed a great deal to its progress and potential. He patented a Three Element Vacuum Tube way back in 1906, this is how it came about.

The very first spark receivers, as I've described, used a coherer, which was a very insensitive device. Although Marconi improved it a great deal, it still wasn't very sensitive but, there wasn't anything better. However, someone (I don't know who or when) discovered that if you took a crystal like silicon or galina or even carborundum (which, I believe, is an artificial product), that these crystals had the capability of acting as rectifiers. They weren't necessarily uniform in every spot on which you touched them, but if you clamped them between a couple of screws and then made contact on the right spot on their surface, they became very good rectifiers. With one of these crystals in series with your aerial and ground circuit along with a pair of headphones, (actually, there weren't any real headphones in those days, only telephone receivers, but later more sensitive headsets were developed with a piece for each ear), you could then hear a signal as a sound instead of as the clicks of a coherer. The advantage of this system was that it was much more sensitive than a coherer.

There was a man by the name of Fleming who developed a Two Element Vacuum Tube. It simply had a filament and a plate inside the tube in which all air was evacuated. This would conduct the signals one direction and not the other. It acted the same way as the crystals did, only it was much more reliable although not quite as sensitive. And amazing as it may seem--it certainly is amazing to me because I lived in that era--when the TITANIC made wireless contact with Cape Race, Newfoundland, the receiver at Great

Cape Race was simply a Fleming Tube, which certainly wasn't very sensitive, but it did work.

Now a good deal has been made about a feature of the Fleming Tube sometimes called the Edison Effect. When Thomas Edison was developing his incandescent lamp, he found that when one of his lamps was in operation—in other words, when a filament was lighted—if he put a piece of metal foil on the outside of the lamp, it was possible to conduct an electric current through the vacuum. The current would go one way and it wouldn't go the other, so it was acting like a rectifier. Edison made note of this and it has been called the Edison Effect. What Fleming did was to use this phenomenon in a practical sense to make a detector or wireless signals.

Now, Lee DeForest was out in California, and as far back as 1906, he was interested in wireless and radio, being a very fine engineer. He experimented with the Fleming Tube and found that if he made a similar tube, but with a grid suspended in between the plate and the filament without touching either, he could then connect, in an overly simplified way, the grid to an antenna or aerial, with the filament side to the ground. Then if he put 25 or so volts of direct current in a series with a pair of headphones between the plate and filament, he would pick up tremendously amplified signals coming in on the antennae. So the Three Element Vacuum Tube was invented by DeForest and it did have the ability to tremendously amplify incoming wireless or radio signals. Up until that time there had been no practical way of amplifying the signals--just however you received them, that's all there was.

There soon developed various ways of what was originally called "Cascaded

Amplifier"--that is, you could put the output of one tube into another one, and into another one, and so on to keep building up the signal. Later, both DeForest and Major Armstrong developed the regenerative circuit, which was vastly more efficient and was easy to build. Amateurs used it. They both developed the idea at about the same time and there was a long patent battle over it. Offhand, I'd say they had both invented it. When DeForest first marketed vacuum tubes, he called them "Audions" which was a good name. After the First World War, some pretty crudely built "Audions" were available, but they were nonetheless good and had a price that amateurs could afford--$7.00, as I remember, though still at that time quite a lot of money.

Anyway, I bought one, and so did most of the other amateurs in Ann Arbor. This tube was an odd looking thing—it was elongated about the size of a hot dog. It had a grid, a plate, and two filaments in it, and the wires simply came out through its glass as wire leads. In order to mount the tube, we had to use our old friend, the shingle.

We used it for a panel, put some screws in it—four of them in a rectangle—hooked the various wires out of the tube, wrapped them around the screws and then made the other connections to them. That was the only panel we had but it worked very well. When we hooked up the Audion--this three element vacuum tube—to our other receiving equipment it was pretty good, as good as we could get to work with the crystal detectors. By using that equipment with the Audion Tube, the increase in efficiency was just amazing. Local stations came in a great deal louder, and at night we could hear every-

thing on the east coast--the commercial stations, all the way from Bar Harbor, Maine to Key West, Florida. This was a big step forward.

In the years immediately following the war, a friend of mine, Bob Wurfel, whose call letters were 8AIF, lived in a farmhouse way out on Miller Avenue near the western edge of the city, with a lot of space beyond the house. It was situated on outlying high ground, Ann Arbor being pretty much in a valley. Bob and I talked frequently about the accepted theory of the time regarding longer wave transmissions. If one had a receiving aerial the same length and size as the transmitting aerial, the efficiency of reception would be tremendously increased. We talked about the possibility of receiving POZ in Nauen, Germany, a suburb of Berlin, which had a very powerful arc station. We knew that their aerial was about 1,000 feet long, so we reasoned that if we could put up an aerial about the same length, we had a fighting chance of receiving POZ. It was a pretty wild idea but we decided it was worth trying.

We didn't want to use steel bailing wire, although it was cheap and available in most hardware stores, because we thought that the conductivity of the steel wire wouldn't be very good and it would be too heavy. We had quite a time getting together enough money to buy a thousand feet of heavy aluminum wire from the William B. Duck Company of Toledo, Ohio. As I said, Bob's house was on the far edge of town, and it was a long way between his house and the next house. On top of a hill west of his house, across several wide lots, there was a tall pine tree. We attached the far end of our long aerial near its top. Then we got a couple of two-by-fours, spiked

them together, and lashed them to the chimney on Bob's house with some guy wires. This gave us some height and made the aerial strong enough to stand the strain at the lower end. But even with all the stress we could muster, the wire still sagged pretty close to the ground in its middle because of its weight.

Fortunately, there was an apple tree about halfway out and just a few feet from where the aerial sagged the most. We fastened another two-by-four well out from the tree with an insulator on its end, and this prevented the aerial from sagging and relieved the strain.

Thus we had a very long antenna. We knew that we would need an awful lot of inductance, plus our aerial, to receive POZ's very high wavelength. We had a large spool of magnet wire at Bob's house and we decided to try that, connecting one end to the aerial and the other to the ground. Bob had a three element Audion tube, so we hooked its aerial end to the grid of the tube through a grid condenser with the customary grid leak. Next we hooked the ground end of the inductance to the tube filament. In the plate circuit we had 22.5 volts which we produced by soldering some flashlight batteries in series. Flashlight batteries at that time were flat and had spring terminals on the end which were fairly easy on which to solder. We held the batteries together with what was called in those days "bicycle tape". (Today we have all kinds of tape—electrical, special purpose, etc.) So we had a strong battery and a pretty good pair of headphones which also belonged to Bob and a 43 plate Chelsea

Condenser. We put this condenser across the spool of magnet wire and said, "If we're lucky it'll add just enough capacity to the circuit to pick up POZ." And incredible as it seems, we did it. I could read fast code by that time and Bob could read code pretty well. So we had really accomplished an amazing feat for a couple of high school kids, and the worst of it was that we couldn't get anybody to believe that we were doing it. Some of our amateur friends said, "Well, yeah, Wedemeyer can read fast code and Wurfel can read code pretty good, we don't question that part."

My friend, Wurfel, was an exuberant sort of a fellow, a nice guy, but he had a tendency to exaggerate things sometimes, so our mutual friends didn't have too much faith in his statement that we were getting POZ direct. But the amazing thing was that we <u>were</u> getting it, and this really should have been front page news, but it never even made the local papers. The reasoning was that the Army Signal Corps still had a station at the University of Michigan with an enormous aerial. If I remember, it was either 4 or 6 wires parallel on spreaders and very high up. Also, they had several Audion Tubes in Cascade Amplification and everything else you could think of. And yet they couldn't get POZ, so if they couldn't, how could we? Well, <u>we did</u>, maybe because we were up on a hill and the University, relatively speaking, was down in the valley.

Finally, another operator confirmed our feat. He and I had had a few tiffs over Ham étiquette, and you couldn't say that we were the best of friends, but he came along one day and listened and said, "Yup, they're getting POZ." So we said, "If Elgin Fritz says we're getting it, we're getting it." It was a tremendous accomplishment.

Robert Wurfel and I were to come together again quite a bit in later years. He and another friend, Georgie Stalker, pooled their amateur equipment and built a broadcast station. I was their engineer and did most of the announcing. And then later on, I was the engineer of the Arbor Phone Factory and Bob Wurfel succeeded me. "Arbor Phone" was the name of the radio. It was built in Ann Arbor, Michigan, by the Machine Specialty Company.) He was quite a part of the amateur and commercial scene around Ann Arbor.

Bob and I were typical of the amateurs of that period. We knew some theory and its practical applications, we knew that we had a good chance of accomplishing what we set out to do, and we had the nerve to try things. In fact, we even risked several hard earned dollars to buy the long aluminum wire.

Of course, an awful lot of years have gone since those times. If you were to drive out to Miller Avenue today past Bob Wurfel's old home (which still stands), you'd see that the whole area is solid with new houses on both sides of the road for a mile or more beyond where the pine tree that held our famous aerial stood. The tree has long since died and something was built in its place.

I'd like to better explain why we had such a difficult time getting anyone to believe that we had received signals from Nauen, Germany. We'll look at the amateurs' position and perhaps the total environment, at least in a general way, as it existed in Ann Arbor in the very early twenties.

Ann Arbor was a small college town then. There was a trolley line that ran from the depot up through town and around the University of Michigan campus and on out to the fair grounds, which today is Burns Park. We lived in a moderately good neighborhood near St. Thomas Church on Kingsley Street. About a third of the neighborhood had electric lights, about a third had gas for lighting and cooking. The remaining third still used oil lamps. Not one family in five had a telephone, and about one in five still used an outdoor privy. About half of us had central heating, usually steam, and the rest used stoves requiring coal to be carried in scuttles several times a day. Only those families with central heating or gas had hot water to bathe in. Everybody had a pump in the kitchen connected to a cistern that caught the rain water from the roof. This was obviously left over from the days before there was city water. Contrary to popular belief, everybody did not have a horse and buggy. That was comparable to owning a luxury automobile today, only perhaps more so. Only two people in our block had a horse and rig. Most people walked everywhere unless they could use the trolley. I thought nothing of walking out to Bob Wurfel's house, which was a good two miles from my house, and back again. We did that sort of thing all the time. Traveling anything over five miles with a horse and buggy was done only with sufficient cause because it took quite a while. We did have both Postal and Western Union Telegraph Service, but most telegrams were received with apprehension since they usually carried bad news, and they were generally delivered to the recipient's home by a messenger boy. (Incidentally, David Sarnoff, who later became the great president of RCA was originally a Western Union messenger boy.) It was possible to call long distance on the telephone but it was expensive and

uncertain and not really practical over any great distance.

The present railway east and west through Ann Arbor, in those days, was called the Michigan Central Railroad, used largely between Detroit and Chicago, although you could go beyond those cities in either direction. The Michigan Central must have had at least a dozen passenger trains stopping in Ann Arbor daily, plus many freight trains. There was also the "T & A", as the Toledo and Ann Arbor Railroad was called. It ran north and south through town with many passenger trains and a smaller number of freight trains. That railroad later became the Wabash. Bear in mind that all trains, all public buildings, schools and most homes burned soft coal, emitting enough smoke pollution to give a modern ecologist a heart attack! But we didn't know any better in those days, so we didn't worry about it.

Remember too, that we only had iceboxes which did not preserve food very long or very well. This meant daily purchases of many food products. It also meant that the iceman came by at least every other day with a horse-drawn wagon full of ice to replenish your supply. You used to have a card which you hung in the window, and according to which way you placed it, the iceman knew whether you needed 25, 50, 75, or 100 pounds of ice.

The retail grocery stores would have a man stop by every morning to take your food order if you didn't have a telephone. They all used a common delivery company, known as "Merchants Delivery," which, with horse-drawn wagons, delivered groceries every afternoon. Obviously, there weren't any radios yet, but quite a few phonographs.

Visiting anyone over 50 miles away was a big deal, usually requiring a day to pick up our trunk and take it to the depot to be checked through to our destination. Then we had to have a horse-drawn hack (the equivalent of a modern taxi) take us to the depot.

Now, in this environment, imagine trying to get some of the old timers to believe that this kid up on the corner with all those crazy wires strung above his house actually talks to other kids as far as 100 miles away. Perhaps a few of the neighbors regarded me and my fellow spark Hams as a little bit off our rockers. There were only about a dozen Hams altogether in town at that time. Perhaps we were regarded with awe, but mostly the townsfolk thought we must be a little bit crazy--if they did conclude we really were in wireless communication with each other.

Some of them remembered that wireless had played a part in the news when the TITANIC struck the iceberg many years before, but kids not yet out of high school talking by wireless and hearing Europe seemed to be pure nonsense.

Because of our environment, we Hams were much closer in spirit among ourselves, not only locally but nationally, than most formal fraternities. Our amateur equipment was assembled with great ingenuity and resourcefulness. By law we were limited to one kilowatt of power and had to transmit at below 200 meters. We had to buy our own power transformer, which produced very high voltage and would cause the spark to jump across the gap. However, to be practical, we needed a condenser,—a capacitor, as we call them today—that

would withstand very high voltage. Such manufactured condensers were very expensive and most of us couldn't afford them. So what we used to do was visit the photographers. They used glass plates in those days and after they were through with them, they threw them away, so we used to pick them up. They were a pretty good size, a little bit larger than a sheet of business sized paper. We would clean the film off them, cut tinfoil sheets, an inch or two small all around, and stick the tinfoil to both sides of the glass with shellac. Then we would mount a half dozen or so in a wooden rack made from the notched sticks that came off a bundle of shingles. That bundle of shingles was pretty important to us. We used the shingles themselves for panels; whenever we needed a small stick, a one-by-two, we usually used the sticks that were part of the bundle holding the shingles together. We would sandpaper them, shellac them and they worked pretty well for many purposes. We let the wood get well dried and then shellacked the sticks, notches and all. We would mount these glass plates, several of them in parallel, separated from each other by the notches in the sticks.

When we operated our transmitter, it would charge the condensers and there was a bad leakage (which had a beautiful blue-colored "corona effect"). It appeared around the edges of the tinfoil on each plate while the transmission was in progress. The total efficiency of these capacitors must have been poor but it was the best we could do and they did work. A straight two-element spark gap was not very good, even if flanges for air cooling were placed on each side of the metal part of the gap. Even so, after a short time, the spark would get what we call "ragged", and it wouldn't sound very good.

A better arrangement was a rotary gap, which would give more of a musical sound while staying cool. We would get hold of an old motor, usually from a discarded electric fan. We attached a disk that was insulated from the motor shaft with projecting lugs all wired together, and we placed it between the two fixed gap terminals so that the spark had to jump from one side of the gap across the rotating points and out to the other side gap. This arrangement caused the spark to have a musical tone or pitch, depending upon the speed of the rotor and the number of points mounted on it. This arrangement resulted in each transmitter having a distinct note or tone. When we shut off the motor at the end of a transmission, it made a wierd drop in tone which was considered quite the thing. We eventually were able to recognize quite a few stations by their own peculiar tone before they actually signed their call letters. A number of Great Lakes boats also used rotary gaps, all of which were most pleasant to hear.

We used a regulation Western Union type telegraph key to control our power input for dots and dashes of the code by making and breaking the 110 volt primary. This could be a little hard on the points of a key which wasn't designed for such heavy current. To overcome this problem, we soldered silver dimes to the points, giving us ample conductivity without overheating. The most important part of an amateur transmitter was the aerial system, which was usually four or six parallel thin copper wires held about a foot apart. Stranded copper wasn't available until later. These wires were held apart with a glazed porcelain insulator at each end fastened to wooded spreaders. The higher the aerial--we would call it an antenna today--the better. In the early days of electric house wiring, porcelain knobs and cleats were used, and they made excellent insulators. The glazed porcelain

cleats had a hole in each end, one to secure the aerial wire and the other to hold the insulator to the spreader.

All things considered, we had remarkably good transmitters. We had to use wooden masts. Sometimes, if we needed height, we made substantial wooden towers like the one I described earlier. Our receivers were as simple as we could make them, but were really quite good. We used an Arlington loose coupler, which permitted a fair degree of tuning our signals through the many overlapping ones we could receive at a given time. They had enough inductance to tune in the U.S. Naval Station, NAA, at Arlington, Virginia on 2500 meters. NAA put out time signals, weather reports and news. With their 100-kilowatts of power, they were listened to a great deal by ships at sea. I could copy them in daylight, and incredible as it may seem, I could often copy some coastal stations using my old fashioned crystal detector. When I later substituted a single DeForest audion in place of my crystal, I could hear all the coastal stations from Cape Race to Key West as well as many ships at sea. Some nights, I could hear some of the great liners crossing the Atlantic and I could receive messages to and from the passengers aboard, sometimes from a great distance out at sea. It was all pretty wonderful.

By 1912, the year the TITANIC sank, Dr. Lee Deforest succeeded in connecting several audions in cascade, thus producing the first audio amplifier. A three element tube was soon developed that could oscillate and thus emit a continuous wave. This was done with very low power, whereas continuous wave arc systems weren't practical with less than 100 watts of power. This new development was the ultimate death knell of the arc system, just as arc had made spark obsolete. Progress in communications through space was moving relentlessly on.

It was cheaper to build a given wattage and it was much lighter and smaller than arc. Of course, the use of DeForest Audions on commercial receivers was welcome all around because it made both spark and arc systems more efficient at the receiving end, regardless of whether they were used in transmission. However, it was apparent that eventually arc transmission as a system was doomed to extinction—all of which eventually slowly came to pass.

In 1914, Major Armstrong, who was later associated with RCA, patented the regenerative circuit for use with the Three Element Audion. It was a relatively simple circuit to build and added greatly to the amplification of incoming radio signals. Amateurs were quick to learn that it could be adjusted so that it would break into oscillation, as we say, and actually transmit or emit a continuous wave signal. This principle was soon developed into CW—the Continuous Wave Transmitter of considerable power--well within the legal limits for amateur use. It quickly gathered popularity with the amateurs.

It was soon learned that voice could be transmitted using such a circuit and this too was well within the budget and abilities of amateurs and was relatively simple to construct. Up to this point, wireless, arc and CW had been considered basically a system for station-to-station communications. However, it was inevitable that commercial broadcasting stations eventually would be built, putting out programs of general interest such as weather reports, news, music, and so on, purely for entertainment.

The subsequent growth of broadcast stations was phenomenal and by 1922 there were some 150 licensed broadcast transmitting stations in the United States. At first, amateurs custom built receivers for broadcast reception

and a few experimentally minded individuals built up very simple crystal sets with one or a few tubes. But this was a fast growing market with many big, well-financed manufacturers getting into the business, as well as many more poorly financed and often poorly engineered, relatively small, loft-type of operations. (A "loft" refers to the upper stories of a store or commercial building,,where some of these small operators manufactured their products.) In any case, radio manufacturing became big business and eventually the job of furnishing replacement tubes and parts to keep all of the manufactured sets in use likewise became big business. This was, in its cumbersome way, the beginning of what we call today The "electronic parts distributing business."

It's interesting to note that in the growing days of building broadcast receivers, the manufacturers used magazines with national coverage to advertise their own particular brands. It was soon apparent that trying to pick up stations other than those close by was quite difficult. Most people soon got over the idea of seeing how many stations they could log and especially trying to see who could get the farthest distance. They just wanted to hear particular programs for entertainment.

Finally, in 1926, RCA purchased Radio Station WEAF in New York for a million dollars and founded the National Broadcasting Company with network programs.

Following World War II, television took hold with a bang and started an industry that made the radio broadcast area seem insignificant by comparison. The TV networks increased in size and numbers and they collected such a large portion of advertising money that many of the monthly magazines that once had been used to promote radio were forced to go out of business.

About the same time, electronic data processing and computers began to gain acceptance and importance; semi-conductors had been developed for some time, but with the advent of the space program, events in these fields picked up rapidly. Pocket calculators at low prices arrived and the whole field of electronics has just plain exploded. There seems to be no end in sight. Altogether it's a wild, exciting, reasonably unpredictable and apparently limitless field, especially in the wholesale distribution end, what with service, research and development and maintenance areas all certain to need materials to keep them going, furnished by electronic parts distributors.

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But let's return now to the downright thrilling sight of my own wireless workshop in my house. During this post-World War I period, I had been able to purchase an Arlington Loose Coupler, from the William B. Duck Company in Toledo. This was the ultimate in a tuning coupler. It had a large primary of beautiful silk-covered green wire. A slider moved along the top of this on a polished brass bar mounted on red mahogany, highly polished wood, and this was the primary coil. A similar secondary coil, also green wire mounted on parallel brass rods, could be moved in and out of the primary for accurate tuning. The secondary had bright brass taps with contacts on the end, with another brass contact controlled by a black knob. The whole assembly was mounted on a mahogany wood base. It was a beautiful and wondrous sight. A Chelsea Variable Condenser had transparent cylindrical sides with a polished jet black top. Nearby lay a pair of beautiful headphones of shiny black with a bright nickel headpiece and green cord. The plain Audion, on the shingle that I described previously, was definitely not in keeping with the symphony of

colors of this other equipment, but it was a mark of progress and status.

Using the Audion tube, especially with circuitry developed later, gave us unbelievable results. I don't know how many times better than a crystal detector the Audion was, but the signals were many times stronger. I heard stations I had never heard before, both commercial and amateur, and could copy Arlington, NAA, in daylight, loud and clear. Commercial users of tubes were also getting exceptional results. All ship owners did not immediately have the advantage of using tubes due to certain patent pending cases and other problems. I think there were patent differences between RCA and DeForest, and it was some time before ship owners generally were able to use wireless with tubes.

When, later in life, I served as a shipboard radio operator, every ship I worked on had an old fashioned crystal detector. When my ship, the ELIZABETH, tied up at Hoboken, New Jersey in 1922, I went ashore and purchased (at, of all places, a branch of the famous Tiffany's) a single tube mounted in a socket with a rheostat. I connected this single tube to my ship's receiver, quite improperly as far as the ship owners were concerned. I also got a 22.5 volt battery, which you could find all in one piece by that time. I think I spent a total of about $20 for this material. When we got out to sea the reception was beyond belief. I took the unit home with me when I left the ship. There was plenty of DC on the ship for the filament to light, and I used the 22.5 volt B batteries for the plate circuit.

It wasn't difficult for us as amateurs to build tuners involving the famous Armstrong Regenerative Circuit (which, incidentally, DeForest also

claimed to have invented at the same time; there was a long drawn out law suit over that). It was a good circuit and, when properly tuned, it gave us absolutely phenomenal results above what the straight Three Element Tube Circuit could. If we "shoved it," as we said, that is pushed it far enough, it would break over into oscillation, in which case the tube receiver became a transmitter, which was the circuit basis for the future tube-type transmitters. In the early days, we'd make arrangements with another Ham across town to tune into our oscillation, which we could both plainly hear. And with either one of us making and breaking the plate circuit, we could communicate with dots and dashes of code. We actually did this before the federal government had permitted transmitters to come back on the air.

Before we could buy B batteries, we made our own, as I described previously, by placing a group of flat-type flashlight batteries side by side, holding them together with friction tape and soldering them in series. We were very innovative--we had to be, and after all, Americans were famous for their ability to "make do", starting with colonial times. Most of our citizens seldom had anything available that they needed and had to improvise as best they could, from that era on.

Quite a few months went by and we expected any minute that the U.S. government would make the announcement permitting us to start reusing our transmitters, but they didn't. And worse still, there was a move afoot to abolish amateur radio completely. It didn't specifically say so, but that's what it would have amounted to. The American Radio Relay League championed our cause (more about this later). Finally, the Director of Naval Communication Service announced removal of all restrictions on radio amateurs and

resumption of authority by the Bureau of Navigation of the Department of Commerce. However, there was a restriction that we could not use more than one kilowatt of power and not operate above 200 meters. If we were within five miles of a naval station, we could not use more than a half kilowatt of power. They, of course, had assumed that by making us operate below 200 meters, we would be pretty harmless and out of the way. We certainly wouldn't interfere with the naval communications on much higher wavelengths.

Now, I'm not going to attempt to go technically into wavelengths, but we did describe them then in terms of meters--it was the opposite of talking about them in terms of frequency, kilocycles, megahertz, etc. What happened is that the government people thought they had the amateurs pushed down pretty close to the bottom where they'd be pretty harmless, not realizing that in the future, all development would emanate from 200 meters and down instead of the other way around. There are all kinds of things below 200 meters—television, police radio, amateur radio--and amateur radio today has certain frequencies in that area.

Without the American Radio Relay League, it might have been the end of amateur radio. That was my first experience in becoming politically involved. I don't mean running for office or anything like that, but rather writing a Senator and asking him to support or oppose certain legislation. In later years, when I was president of the National Association of Wholesaler Distributors (which is a federation of 115 wholesale trade associations), I became involved very deeply in political action of that type. I never operated as a Democrat or Republican. I was never along political lines. I was always speaking on behalf of our group and learned a great deal about

how to present issues and how to get along with Senators and Congressmen. You get to know them and they want to do what's right within realistic limits. Politics is quite an interesting field in itself, but when I was a boy, I saw my father's fine actions as a Congressman deliberately misinterpreted by his enemies and saw how he was made to look bad when he was actually involved in good works. And, even as a small boy, I understood politics and vowed that I would never run for political office--and I never have. The trade associations and other organizations which I at one time or another headed were not, in any sense, political offices.

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Getting back to amateur radio following the War, after the ban was lifted and transmitters were legal again, the hams in Ann Arbor (including myself) all obtained their station licenses and got going again. All of them had transmitters before the War, so it was just a matter of getting the equipment back together again in operation. All of us within a very short time used the Audion tube in our receivers, but we also continued to use spark transmitters. Some hams already had good ones before the War, and the rest of us improved ours and got better ones. Before the War, I didn't have a license, so I wasn't really permitted to go on the high power end. However, we used to take a spark coil off a Model T Ford, which had a small spark coil for each spark plug. We discovered that if you ran one of these coils on six volts, it would put out a pretty substantial spark. I wasn't the only one who did it, and I made a successful spark transmitter with a Model T Ford spark coil and actually communicated with an amateur in Detroit. This is another example of a ham's unending desire to try things and innovate, which we had

to do in order to make progress.

After the War, I acquired a very good half-kilowatt spark transmitter. I had a good Thordarson transformer. Incidentally, it would also put out a lot of voltage to make a good transmitter. It takes roughly 20,000 volts to jump across an inch air gap, and this transformer put out something over 5000 volts in the secondary to jump across the gap. I had a rotary gap and by that time I'd say I was a pretty good operator. I could send and receive a lot faster than 10 words a minute, which was all the amateur's license required.

So, it wasn't long—I would say at the least six months, and at the most a year--before all of us were operating transmitters pretty actively. Now, a spark was capable of transmitting quite a distance. If you had one spark transmitter in a given location with no interference from another spark transmitter in operation, and you had another Ham with a receiver 100 miles away, he could hear you—it would come in pretty well. But the trouble was that a spark wave—the waves we emitted—were very broad. That meant that they were, as you tuned them in, over a wide space. It's like a modern radio - even the little transistor radios we have today—that is you move your dial a fraction of an inch, you can pick up another station. Well, with spark you had to move it quite a long way before you could tune a station out. In other words, they spread over quite a wide spectrum and when you had a group of transmitters going at once (which was most of the time, particularly at night) they would interfere with each other.

So, while these transmitters were really quite efficient in terms of power, it was pretty difficult for the fellow at the other end to tune in the transmission he wanted without getting interference from other transmitters, perhaps in the same town. There was a lot of interference between stations. Every once in a while some Ham station would come through remarkably well over considerable distances. The law required that we have coupled high frequency transformers and this gave transmission a tendency to be sharper, that is, not quite so broad. Every once in a while some fellow would just happen to hit the right combination and get out a lot of signal in a relatively narrow band compared to the average, and he would get through quite a distance. One of the Hams in Ann Arbor was Dutch Esslinger, who had such a station with the call letters 8LV.

Dutch was a wonderful man; he and I at one time worked together for the University of Michigan in the Chemistry Stores Building. He only had a half kilowatt transmitter. He lived over on Chapin Street, on high ground by West Park. His was just an average transmitter and his coupling seemed to be about the same as the rest of ours. There was nothing outstanding about his antenna system or his aerial system, yet he set all kinds of records for other Hams hearing him at considerable distances. We all used to look his equipment over pretty carefully and just shake our heads. Sometimes a visiting Ham would come through and look it over and see what kind of remarkable station it was. They would shake their heads and say, "Well, it must be the location." And that was that.

So there was a lot of adventure in Ham communication. But because of the interference factor with spark, we would sometimes stay up a whole night

hoping, in the wee hours of the morning, to get past the interference from other stations (which, incidentally, was referred to with the Q signals as QRM). Perhaps early in the morning, about two or three o'clock, most of the Hams would go to bed, and we would have a greater chance of reaching somebody far away. That was quite an adventure, and every once in a while it would be quite thrilling. I did it and Dutch did it--sometimes the two of us would sit up together in one or the other location all night. It was a great era and there was a great deal of friendly feeling between us.

To summarize a bit: following World War I the amateurs got their spark equipment going again and a lot of new Hams came into the field with new spark transmitters, including myself. I had a very fine half kilowatt outfit that did the job very well. While most Hams were using Audion tubes, the commercial people couldn't because there were patents restricting their use. But we were able to do things freely and do a great deal of experimenting with different circuits and arrangements. It was really a national research project carried on voluntarily by a group of amateurs with the medium of the American Radio Relay League publication to keep summarizing our results and efforts. We didn't do our experiments because we were civic-minded or public-spirited. We did them because we wanted to. It was our hobby and we had a lot of fun doing it.

The first tube CW transmitter that I ever had—of course, I made it myself--had a single tube with a bayonet base that fitted into a socket, as opposed to having wires coming out of the tube, as they originally did. The coils for the circuit were wound on an oatmeal box. We're all deeply grateful to the Quaker Oats Company for the oatmeal boxes: they were the only things

we had that were about the right diameter. I used, of course, a shingle for a panel, on which was mounted a rheostat plus a couple of terminals. I made my own power transformer. In those days every hardware store had a metal shop. I went down and got some iron strips cut the right width and length, stacked them alternately in such a way that the corners would fit together, making the core. You could pull one corner apart and slip in "doughnut coils," as we called them. That is, we'd coil up a lot of wire for winding and then slip it over the core and then another one and another one. I had it fixed so that it could put 110 volts AC into the primary and would get--according to an old diagram and note that I found in a very old book--536 volts AC out of the secondary. That, of course, was just AC and we had to rectify it with what we called a "jelly glass rectifier." In those days, long before frozen foods, the average housewife canned a lot of fruit and vegetables and usually made jelly. Everybody had lots of jelly glasses so they were easily available. We found that if we'd use a jelly glass and hang inside a piece of aluminum on one side and either lead or tin on the other side and then pour in a solution of borax--just plain 20 Mule Team Borax--that it would serve as a rectifier. We'd take a whole bunch of these "jelly glass rectifiers" and hook them up--maybe 25 or 30 of them. The rectified AC came out in good enough DC so that we could use it for voice transmission. It was a very practical, cheap way of rectifying AC into a workable DC. Of course, we had to refill the glasses every once in a while with some more solution and the elements wouldn't last forever--they'd eventually corrode or be used up—but it was a very practical system that didn't cost too much to assemble and maintain.

Looking back and thinking about some of the Hams who lived at that time, I'm going to review them to the best of my memory. There was, as I have said, Dutch Esslinger, 8LV, and he was an awfully nice man. He worked for the university. Then there was Franklin Johnson. His call was 8DG. His father was on the University of Michigan faculty. He was an awfully nice fellow and quite studious; he ended up getting a degree in electrical engineering from the University of Michigan and also a degree in medicine, if you can imagine such a thing. He operated the first heart station at the University of Michigan, which I think was one of the first in the country, and he certainly was a most capable man: a Ham, an electrical engineer and a medical doctor. There was Elmer Reeves, who lived out on the top of Broadway Hill. Elmer and I were quite close. We went to the university together. Our homes were about a mile apart. Elmer was an early riser and he would wait for me outside my house in any weather and wouldn't come in. I'd get ready and come out and we'd walk together. We'd walk to Ann Arbor High School, and when I went to the University of Michigan, we'd walk there too.

A great thing at that time was the University of Michigan's amateur station, which was tremendously powerful (so it seemed to us). It had a big aerial and window glasses for the condensers. It was a beautiful sight to behold when they transmitted and all this purple-blue discharge went out around the edges of plates. The spark was a loud crashing sound and created an odor of ozone.

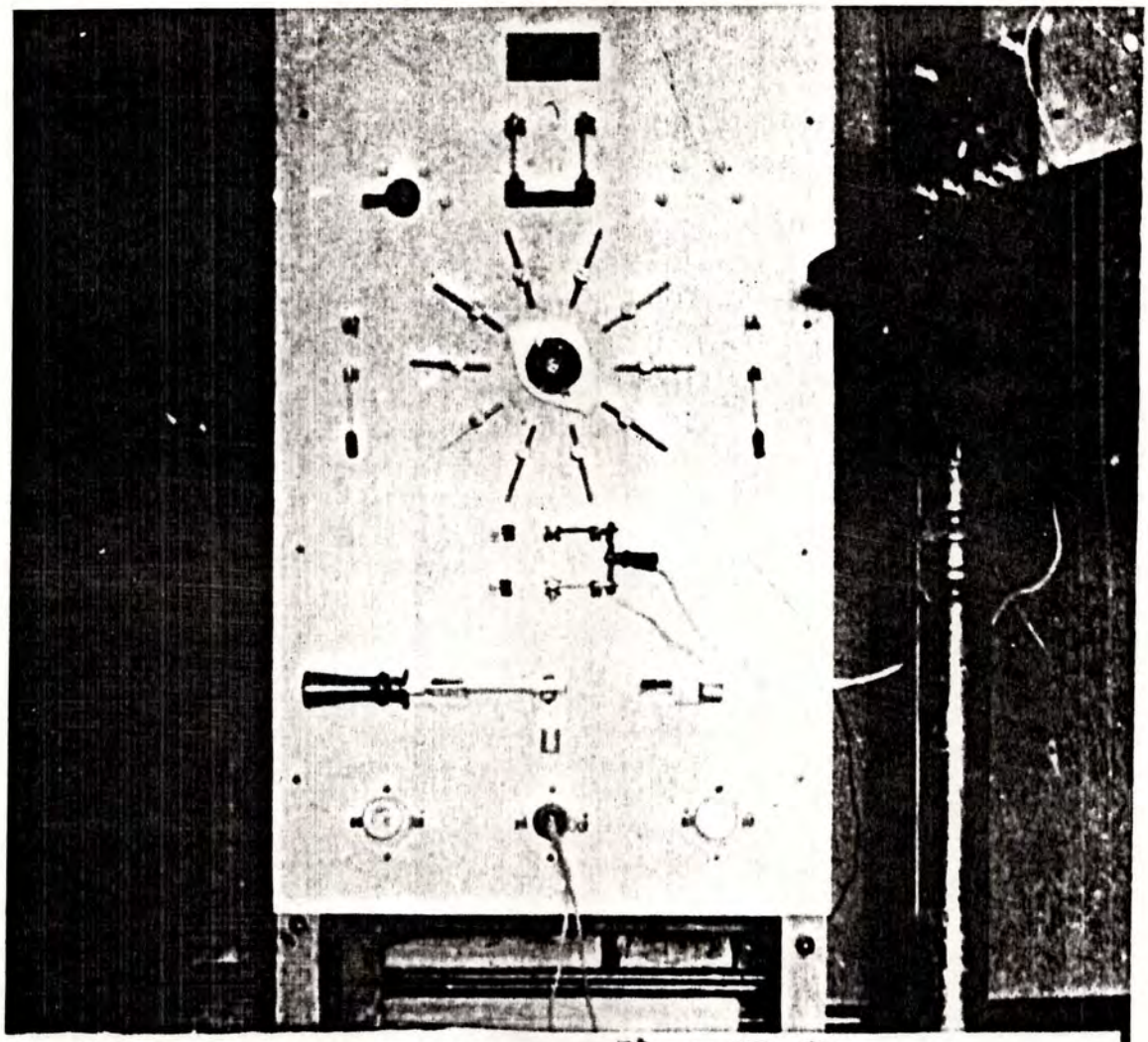
Many a night, Elmer would walk all the way from his house to mine after supper and both of us would walk up to the University of Michigan Engineering Building where the Engineering Arch is. That's a fair distance from the house I lived in then. We would just stand around there and listen to the transmitter. Professor Louis Holland, a very fine gentleman, was pretty active in operating that

amateur station.

The backgrounds of my ham friends were quite interesting. Robert Wurfel's father was a retired Lutheran minister; Franklin Johnston's father was on the university faculty; Elmer Reeves' father worked, I think, for the city (he was not a highly educated man but they were very fine people). In later years Elmer and I roamed together in Detroit, and at that time he was working for Western Union as an engineer. Later he worked for AT&T and was director of a laboratory that tested new telephone devices. He advanced quite a long way technically and held a very responsible job.

Bob Wurfel was a very successful man both as an engineer and in business. His ham call was 8ABQ. Elmer Reeves has long since passed away and so has Dr. Franklin Johnston. There was another very fine young man, Faren Reigart. His father was also a University of Michigan professor who accorded us the remarkable privilege of loaning us his car so that Faren, George Stalker, Elmer Reeves and I could drive to Chicago to attend the First National Convention of the American Radio Relay League in 1921. We had to agree not to drive at night. We made it in the then remarkable time of two days. The main highway was only partially marked and only about half of the roads were paved. Today we can drive from Ann Arbor to downtown Chicago in four hours. Over 1500 attended the convention and most were code operators. Many famous people of the day, including Hiram Percey Maxim, were on hand. It was a big event.

Faren was a very nice, quiet guy who had bad eyes and had glasses with thick lenses. He taught me to play chess, which I have long since forgotten. Tragically, he was killed in a holdup, awakened from his sleep while camping along the road with his brother on their way to Minneapolis, where his brother was a member of the University of Minnesota faculty. George Stalker was a very close



Station 8ABQ
Amateur "Ham"
Soark Wireless
Transmitter 1922
Rotary gap in
center of panel.

friend of mine. His father was the Acting Methodist Minister. In those days there seemed to be only one Methodist Church. It was up on State Street, across from what was then the high school and is today the University of Michigan Frieze Building. There is a rather modern, beautiful Methodist Church on the same site, but when Georgie's father was the pastor it was a brick building with two spires. Georgie's call letters were 8CAA. Four letter call indicated that the man had more recently acquired his station; the old timers had a three letter call.

Incidentally, Faren Reigart's call letters were 8ABQ and he was one of the later Hams. He had a very fine spark transmitter, I recall, mounted on a marble panel. I don't know just how good that marble panel was as an insulator with high frequency, but he had the spark gap and everything made right on it. I have a picture of it; it was a very nice looking marble panel and did work, but it didn't set any world records.

I am, and was then, a Catholic, and in that era, Catholics weren't too popular and Protestants were a little suspicious of them. The three of us--Bob Wurfel, whose father was a retired Lutheran Minister, George Stalker, whose father was the Acting Methodist Minister, and I--were very close and we used to take great delight in kind of upsetting things a little bit. I was an active member of the Knights of Columbus, so we used to go out to the K.ofC. Hall to shoot pool. That raised a few eyebrows. And they used to invite me to their church picnics and that would also cause a few ripples. Of course, nothing ever came of it. But I think, more than anything, that illustrates the tremendous feeling we had for each other and the ability of Ham friendship to override prejudice.

CHAPTER VII

GETTING MY AMATEUR AND COMMERCIAL LICENSES

The removal of the ban on transmitters (with some limitations) became effective on September 26, 1919, and all the Hams around Ann Arbor, and, presumably around the whole country, began resurrecting old spark equipment, putting it back in operation and getting our proper licenses as fast as we could. It was a wonderful era. Fortunately, I have found my first amateur license, dated September 30, 1919, in which it says that my knowledge of the general adjustment, operation and care of the apparatus was good; that my general knowledge of international regulations, Acts of Congress to regulate radio communication and so on was good; and that I could receive Continental Morse Code at a speed of 10 words per minute. This was called an Amateur Radio First Class Operator's License. Then, with that in hand, I could apply for a station license. You had to tell the government how much power you were going to use.

I was also lucky enough to find a copy of my first Station License, dated November 22, 1919. I'm sure I applied for it before then, but I suppose that many applications came in about the same time as mine, and it took some time to get them processed. It says "License for General Amateur Radio Station, Call Letter 8BF, Number 32." That meant that I was the thirty-second station licensed in the Eighth District, of which the state of Michigan is a part. That's a very old license. Down below there's a lot of the usual legal language, and then it reads, "Power Input"--that meant the spark transformer was 550 watts. The type of antennae was an inverted L; it says the height was 46 feet above the ground; horizontal length was 60 feet; the number of wires in the horizontal part on the sputters was six; and the normal sending and receiving wavelength was 200 meters and was not to go above that. This is a

Form 758

ORIGINAL

Official call 8 B F *Number* 32

LICENSE FOR General (General or restricted.) AMATEUR RADIO STATION

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION
RADIO SERVICE

Pursuant to the act to regulate radio communication, approved August 13, 1912, George Wademeyer, age 17, a citizen of the State of Michigan, county of Ann Arbor Washtenaw, city or town Ann Arbor, street East Kingsley, No. 511, having applied therefor, is hereby granted by the Secretary of Commerce, for a period of One year, on and subject to the restrictions and conditions hereinafter stated and revocable for cause by him, this License to use or operate the apparatus for radio communication (identified in the Schedule hereinafter) for the purpose of transmitting private radiograms or signals, notwithstanding the effect thereof extends beyond the jurisdiction of the State or Territory in which the said station is located: *Provided*, That no interference other than may result under the restrictions contained in this License shall be caused with the radio communication of stations of the Government of the United States or licensed stations.

2. The use or operation of apparatus for radio communication pursuant to this License shall be subject also to the articles and regulations established by the International Radiotelegraphic Convention, ratified by the Senate of the United States and caused to be made public by the President, and shall be subject also to such regulations as may be established from time to time by authority of subsequent acts and treaties of the United States.

3. The apparatus shall at all times while in use and operation be in charge of a person or persons licensed for that purpose by the Secretary of Commerce, and the operator of the apparatus shall not wilfully or maliciously interfere with any other radio communication.

4. The station shall give absolute priority to signals or radiograms relating to ships in distress; shall cease all sending on hearing a distress signal; and shall refrain from sending until all the signals and radiograms relating thereto are completed.

5. The station shall use the minimum amount of energy necessary to carry out any communication desired, and the transformer input shall not exceed ~~one~~ one half kilowatt.[1]

6. The station shall not use a transmitting wave length exceeding 200 meters.

7. The station shall not use a transmitter during the first 15 minutes of each hour, local standard time, whenever the Secretary of Commerce by notice in writing shall require it to observe a division of the time, pursuant to the Twelfth Regulation of the act of August 13, 1912.

8. The President of the United States in time of war or public peril or disaster is authorized by law to close the station and cause the removal therefrom of all radio apparatus, or may authorize the use or control of the station or apparatus by any department of the Government upon just compensation to the owners.

9. The Secretary of Commerce and Collectors of Customs or other officers of the Government authorized by him may at all reasonable times enter upon the station for the purpose of inspecting and may inspect any apparatus for radio communication of such station and the operation and operators of such apparatus.

10. The apparatus shall not be altered or modified in respect of any of the particulars mentioned in the following Schedule except with the approval of a radio inspector, or other duly authorized officer of the Government.

Name of naval or military station, if within 5 nautical miles,

Power: Transformer input, 550 W.[2] Antenna: Type (T, ⅂, etc.) Inverted L

Height, 46 (Above ground); horizontal length, 60

Wires: Number in vertical part, 30; in horizontal part, 6

The normal sending and receiving wave length shall be 200 (Not exceeding 200) meters and the station is authorized to use the following additional wave lengths, not exceeding 200 meters:

meters, meters.

This License expires on November 22, 1920

EDWIN F. SWEET,
Assistant Secretary of Commerce.

E. T. CHAMBERLAIN,
Commissioner of Navigation.

Delivered by S. A. Rwards (Radio inspector.)

Place Detroit, Michigan. Date November 22, 1919

[1] Strike out "one" if the station be within 5 nautical miles of a naval or military station; otherwise strike out "one half."
[2] Not to exceed 1,000; or if the station be within 5 nautical miles of a naval or military station, not to exceed 500.

92A

priceless document. We also had to have an operator's license, which required a considerable amount of technical knowledge. I remember I had to go to Detroit, to the Federal Building, to take the examination. The round trip from Ann Arbor to Detroit was 70 cents on the electric trolley.

Now, of course, I had my eye on getting a commercial license that would make me eligible to try for a job on a freighter. That was a much tougher exam, also given in Detroit. The test wasn't unreasonable, but it was quite comprehensive. First you had to receive Continental Morse Code from a mechanical transmitter at a speed of 20 words per minute. This was difficult because there was no personality in the machine-perfect transmission. We also had to write down in letters certain call and finish signals that were not normally written down. The attention signal had to be written down as "C T" or "K", and the finish signal "R N". This tended to rattle us and we needed great concentration to copy a minimum of continuous words and numerals in succession to demonstrate that we could receive 20 words per minute. Three out of five first-time applicants failed this test. They could try again in three months.

The next stage--and we knew it was coming, since they told us ahead of time--was to draw a complete schematic diagram of a modern transmitter and receiver, including all the switching arrangements. Unless one had practiced this ahead of time, it was pretty difficult to do, especially within the 45 minutes alloted for the purpose. Of course, I had practiced it many times on a business-size sheet. The inspector

looked it over, and if he said it was good, you could go out to lunch and come back in a little while and take the written examination, which you had four hours to complete. It was very comprehensive, including such technical items as Q signals and international law. If you could pass that, plus Morse Code, you really did know enough to operate a commercial transmitter. I never wanted anything so badly in my life as to be a ship wireless operator, and as a stepping stone I had to get this Commercial License. I passed the first time, and the license arrived dated May 14, 1920. That was a very important document in my life, particularly as it pertained to radio.

I want to go back a minute and tell you something about the electric railway that went through town. (Incidentally, the city trolley cars ran over part of the same tracks.) These electric trolleys, passenger and freight cars ran both directions on a single track, so at intervals they had to have switches at a siding so they could pass each other. There was such a siding or switching arrangement at the top of a West Huron Street hill.

Today it is Veterans Park, with a swimming pool and ball diamonds. At that time, it was called the Fair Grounds. At night they used to switch the electric cars around, with some on a siding at the Fair Grounds. Somehow, in the process, one of the freight cars broke loose and started to roll down hill. The brakeman ran after it and managed to catch it and climb aboard. He tried to stop it with a hand brake. He did his heroic best but it wasn't good enough. It's quite a long way from the top of the hill to the bottom. The car was traveling at a very high rate of speed by that time, perhaps 40 mph. Before the car got to the corner of Huron and Main Street, where it was supposed to turn, the brakeman dropped off the car and broke his leg. The car made

The United States of America

NUMBER
1682

DEPARTMENT OF COMMERCE AND LABOR

LICENSE

TO

RADIO OPERATOR, AMATEUR FIRST GRADE

This is to certify that George Wedemeyer

has been examined and shown to have a knowledge of the adjustment and operation of apparatus and of the regulations of the Radiotelegraphic Convention and the Acts of Congress in so far as they relate to interference with radio communication and impose certain duties on all grades of operators sufficient to entitle him to a license, and he is hereby licensed as required by law. Radio Operator, Amateur First Grade for two years.

The candidate was examined and shown to have knowledge (excellent or good) in the following additional subjects:

a general adjustment, operation and care of apparatus Good
b transmitting and sound reading Continental. Morse at a speed of ten words a minute.
c general knowledge of international regulations and Acts of Congress to regulate radio communication Good

[redacted]
(Examining Officer)

[redacted]
(Title)

CHARLES NAGEL,
Secretary of Commerce and Labor

[redacted] Date September 30. 1919

1 Excellent or good 2 Insert speed

it part way around the bend and then crashed into what was then the Farmers and Mechanics Bank, completely demolished the structure. This was an incredible accident. It was quite a job getting the car out of the wreckage and rebuilding the bank, but in due course it was accomplished. It's now the present site of the Ann Arbor Bank.

In those days, it was possible, by changing cars at rather frequent intervals, to travel all the way from Detroit to Chicago on the interurban electric car and trolley system. The cars were large, and also pulled some freight. The one that went through Ann Arbor was known as the D. J. & C.— Detroit, Jackson and Chicago. I don't know how much farther that particular line ran beyond Jackson, but it was very active between Jackson and Detroit. The tracks were the same size as the railroad tracks for the steam trains like the Michigan Central. I once had a summer job working on the section gang of the D.U.R., as we called it. It was very hard work, 10 hours a day, six days a week, but I was quite athletic at that time, and once I had a couple of days to break in I felt really good. You either felt good or it killed you, but, believe it or not, it was quite interesting!

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The United States of America

NUMBER 17317

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION

LICENSE
TO
RADIO OPERATOR, COMMERCIAL FIRST GRADE

This is to certify that - George Ed. Wedemeyer -

has been examined and passed, pursuant to the Radiotelegraphic Convention, in

(a) *adjustment, operation and care of apparatus;*
(b) *transmitting and sound reading at a speed of not less than twenty words a minute Continental Morse;*
(c) *use and care of storage battery or other auxiliary;*
(d) *knowledge of international regulations and Acts of Congress to regulate radio communication;*

and is hereby licensed as required by law a Radio Operator, Commercial First grade for two years. The candidate's practical knowledge of adjustment was tested on a theoretical *set of apparatus. His knowledge of other systems is shown below.*

- Not tested -

Had to have COMMERCIAL FIRST GRADE
license to be a ship operator

J. W. Alexander
[illegible]
Secretary of Commerce.

E. T. CHAMBERLAIN,
Commissioner of Navigation.

D. M. Edwards
(Examining Officer)

Oath of Secrecy executed.

U. S. Radio Inspector
(Title)

Notary Public.

Place Detroit, Mich. *Date* May 14, 1920

CANCELLED

95A

CHAPTER VIII

My First Shipboard Job

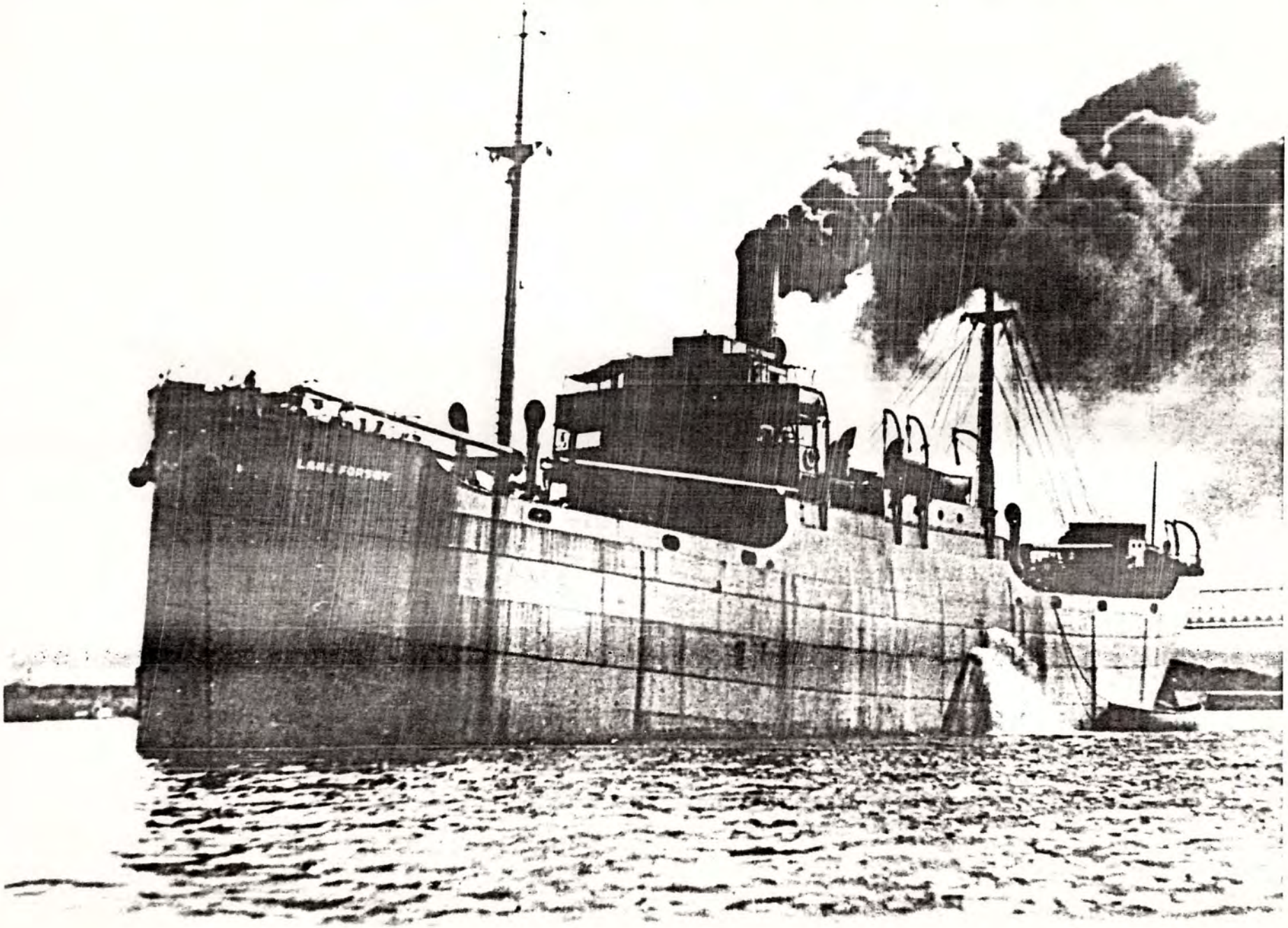
I think it's about time for me to describe getting my first job as a seagoing wireless man.

It was in early summer of 1920 when I was overjoyed to receive an offer of a job as wireless man aboard a brand new United States Shipping Board freighter, the PULASKI, soon to leave the Toledo, Ohio shipyards where she was under construction. I understood that I might be required to serve for as much as six months, with England as a possible destination. However, my mother, God rest her soul, did not share my enthusiasm for a number of reasons. There was the shocking reminder of my father's untimely death at sea; the fact that I had just turned 18 and had not yet finished high school; plus her impression that sailors in general were a rather low order of people, and that I would not enhance my chances of becoming a proper young man by associating with them.

In the course of his duties at various levels of government, my father had come to know many important people and my mother had fitted perfectly into the social relationships with them, sometimes in Washington, D.C. and sometimes at our home in Ann Arbor. I suppose they could be referred to as the "better people," at least socially. On the other hand, at least in my mother's world, sailors were looked upon as being a low class of people. While this may have been true, to a limited extent, among some common sailors, she couldn't seem to grasp the idea that officers, even of a lowly seagoing freighter, were intelligent and reliable men, and that I would have the status of an officer as a wireless man.

She finally agreed that it would be all right for me to go, but to be sure and take along a heavy sweater because it might be cold in England. She had traveled widely in Western Europe.

Freighter Lake Forsby (sister ship to PULASKI (Lake Fine) George Wedemeyer "Sparks" 1920.



Toledo was about 55 miles south of Ann Arbor, so my mother and I took the train down. I felt quite embarrassed at having my mother accompany me because I was grown up. After all, I was almost 18. She waited for me at the shipyard gate while I checked aboard, and said she would wait for me to see that everything was okay. It was all too wonderful to be true--a brand new ship on which the workmen were still finishing up when I came aboard. I checked in with the first mate, who showed me my quarters and the wireless room with a brand new one kilowatt spark transmitter. I suddenly remembered that my mother was still waiting for me at the gatehouse where a kind old guard had kept her in conversation. I couldn't have been happier and in my youthful ignorance couldn't understand why she almost cried as we said goodbye. I couldn't understand her concern for my future, and while I didn't realize it then, it was indeed in doubt.

As for the PULASKI, she was one of some 331 ocean freighters built in various Great Lakes shipyards during the First World War. The United States Shipping Board had been trying to build merchant ships faster than the Germans were sinking them. The PULASKI was being finished after the war had ended. Most of these vessels were named LAKE Something-Or-Other. The PULASKI was scheduled to be named LAKE FINE, but for some reason I never learned, she was named PULASKI after the famous Polish patriot that helped America in the Revolutionary War. She was 253 feet long with a beam of just over 43 feet. That was as big as these vessels could get and still squeeze through the nearly 60 locks between Lake Erie and Montreal, where a vessel could enter the St. Lawrence River at sea level. From there, it was still a couple of days' run for a freighter to the Atlantic.

As all sailors know, there is a smell to a ship in port. Not an offensive smell, but rather a pleasant one. On the coast there is the smell of the sea, perhaps a breeze blowing it in; the smell of sea water and oil close to the ship;

the heat from the engine room and, before the days of pollution regulation, the smell of smoke, and always somewhere aboard, the smell of fresh paint, because there is never an end to painting a ship. My boarding of the PULASKI was a most unique experience because she was a brand new ship in the finishing stages of construction, so everything had the smell of newness with lots of new paint still being applied.

My brand new wireless equipment had a wonderful smell and I was the first and only one who would ever experience it. I encountered what fortunately turned out to be a minor problem because I was able to take care of it promptly. There was a rather large insulator about eight inches high, made of glass or glazed porcelain mounted on the operating table top and supporting the aerial transmitting lead which carried high voltage and high amperage to the aerial. On the PULASKI, an insulator of some kind of brown molded material mistakenly had been used. It literally melted into a glob after I had used the transmitter a few times. Fortunately, because we were just out of the shipyard, there were scraps of wood about from some crates, and I was able to get the ship's carpenter to saw a piece of dry wood the correct length. I wedged it in place of the original defective insulator. It was still there and functioning well when I left the ship.

So much for bad luck and good luck. My transmitter was a one kilowatt quenched spark gap transmitter representing the ultimate of its type. It would eventually be replaced with a vacuum tube transmitter, just as my crystal detector would be replaced with a three element vacuum tube detector. But these improvements would not come about in practical use on ships for many years to come.

I was fascinated by the appearance of my wireless equipment and just couldn't resist checking it out. I realized that with the ship's aerial being much higher and longer than any ham installation, the results would be proportionately better.

First I tried out my receiver. Cleveland-NRH came in extremely loud, and NRQ way up at Windmill Point, Detroit, came in strong, to say nothing of several vessels out in Lake Erie. Then without realizing the consequences, I switched on my transmitter and sent out a series of the letter V, holding the code a bit longer than usual with my eyes on the ammeter in the aerial lead. I was amazed at the high reading I was getting. Then caught up in the excitement of the moment, I tapped out the ship's call letters, K U Q L, several times, still watching the aerial meter with amazement. Worse still, I repeated the process several times, completely forgetting the strict rule against ever sending out needless or superfluous signals, such was my excitement at the moment.

The Mate had told me that I would eat with the officers in the saloon at 6 a.m., at noon, and at 6 p.m. He showed me where it was in the forward end crosswise of the main superstructure, with a row of portholes across and behind the table. He also told me to check with the waiter in charge who would show me where I was to sit, and to always sit in the same place.

I discovered that it was almost 6 p.m. and thought it best to go to the saloon early, hopefully ahead of anyone else. As I entered, an old timer in a white coat, the waiter, said good evening. He indeed showed me where to sit and told me to always sit in the same place. I was fairly well along with my meal when I thought I would like another spoon, so I picked one up from the setting next to me. Fortunately, no one else had arrived yet, and the old waiter came over to me and said quietly and kindly, "Sparks, this ain't the Waldorf-Astoria. This is a ship and you only get one set of tools; one knife, one fork and one spoon. So don't reach for nobody else's or you are liable to get your wrist broke."

"Thank you, sir," I replied, and he said, "Don't never call nobody on this ship 'sir' except the Captain or one of the mates. You can call me Joe." I was learning fast and enjoying the experience. To be addressed as "Sparks" was a thrill I had long dreamed of.

I soon got to know whom the mates were and managed to get along well with everyone I came in contact with. It was a new ship and a new crew and everybody was pretty tolerant of everybody else. Other members of the crew kept coming aboard all evening and even into the early hours of the next morning. I tuned in Arlington - NAA for time and weather signals at 10 p.m. and it came in very strong. I turned in soon afterward, taking the best of three bunks in my sleeping quarters. Apparently they had three wireless men aboard some of the ships and kept continuous watches during the war. The wireless room was next to the sleeping cabin with a door facing aft and the quarter deck hatches clearly in view below.

The next morning, fairly early, the radio inspector came aboard and went directly to the wireless room where I was sitting with my headphones on, listening to whatever I might hear. The inspector asked my name, introduced himself, showed me his indentification and then proceeded to really admonish me in strong but (to his credit) not sarcastic language, for having tied up wireless communications all the way from Cleveland to Detroit, not once, but several times the previous afternoon. I apologized to him for my obviously thoughtless behavior, but explained that I couldn't resist seeing if my transmitter was working. I had acted like a ham.

He was a most reasonable man, really a good Joe. He accepted my apology and advised me to strictly adhere in the future to the general regulation that no needless signals should ever be transmitted. I wholeheartedly promised to

observe this and did. Then he said, "Let's check your storage batteries." We found that they badly needed water, which I promised to take care of right away. He wished me well and left.

The a.c. power that operated our transmitter came from a motor generator that ran off a large bank of heavy duty storage batteries. As soon as a transmission was concluded, I would switch to a charger that would replenish the batteries. It was necessary to check them frequently and replace the distilled water that had evaporated from them, which I did as soon as the inspector left. We had a large demijohn of distilled water containing several months supply, stored near the battery tank.

About 2:30 that afternoon we cast off for the first time. No celebration, no champagne broken on the bow. Everything apparently went well on our trial run of some 12 hours and we docked in Cleveland about 2 a.m. Later that morning we took on food supplies and completed some paperwork ashore. Next morning we left for Huron, Ohio, where we loaded coal for our galley stove. I went ashore for a look around.

We left for Port Colburn, Ontario that afternoon, and as soon as we were well out into the Lake, the Captain requested my presence on the bridge. He gave me the following message to send: "To Mr. J.L. McDouland, United States Shipping Yard, Perry Payne Building, Cleveland, Ohio. PULASKI left fuel dock 2:05 p.m., started 12 hour trial run at 2:30 p.m. Signed Captain James Woods."

I thought the message a bit overdone both with the address and the Captain's first and last names, but he handed it to me hand written and said, "Read it back to me," which I did. Then he said, "Send it exactly as I have written it and come

back and tell me as soon as you have sent it."

"Yes, sir," I replied, and I sent it and reported back to him. That was the first message I had ever sent from the Captain. I was very happy, thinking to myself, "At last I am really a wireless man on a ship," a brand new ship painted battleship gray, the color of all U.S. Shipping Board vessels.

I was rapidly becoming accustomed to the ship's routine and had learned that the first mate's name was Emil Hurt. It was wonderful being underway way out on the Lake, heading for Port Colburne, Ontario, where we arrived next morning.

I went ashore with the second mate, but we didn't stay together. I walked along a residential street not far from the ship and soon spotted a good four wire aerial above a house. That meant that a ham lived there. I hoped he would be in. It was a Sunday morning and he was home, so I as soon as I gave him my American ham call and told him I was operator aboard the PULASKI, I was taken in like a member of the family and treated most kindly. He urged me to stay for noon Sunday dinner, which I had a bit of difficulty in politely refusing. It was a most pleasant experience, but that's the way it was with hams everywhere. I think that hams have probably done more for world peace than diplomats.

Later in the day we moved to Turold and made fast there for the night. After evening mess, the cook, two mess men and I went across the bridge to Niagara Falls. The Canadian customs officer wanted to know if we were all from the same ship. We told him we were and he suggested that we all come back together. He would alert the men on duty on the late night shift to let us through without the usual questions. The cook and I looked at the falls with search lights on them, which was quite impressive. I had seen them before only

in daylight. Somehow we did all get back together, and since I was the only one completely sober, the customs officer accepted my word that we were all from the PULASKI. He asked if we would please do him a favor and go directly back to our ship, which we did.

Next day was the start of the most interesting and difficult part of our trip, going through the locks of the Welland Canal. We had to ease slowly into the lock with the tiller turned sideways so as not to catch on the gate as we came in. Our passage was handled by two deck engines forward and two aft which operated very heavy stranded steel cables secured to bullards alongside the locks, with reels on the deck engines. By reeling in the forward cables and releasing the after cables at the same speed, our ship could be slowly moved into the lock and stopped quickly at exactly the right spot with just a few feet clearance at both ends. At this point the water was let out of the lock and we slowly sank to the level of the next lock. We eased into it, repeating the procedure all over again.

Public address systems hadn't been developed yet, so while the captain or officer-in-charge could shout any necessary orders to the forward engine reel crews, he had no quick way of directing the after reel crews. Late in the day something went wrong and the forward cable on the starboard side parted. It snapped, sounding like a thousand violins all plucking a single note and a volley of rifle shots at the same time, followed instantly by a frightening scream as the cable cut through the air and a sickening thud as it slapped against the side of the ship, leaving a definite scar. It all happened in a matter of seconds. Somehow another cable was gotten out and we continued on. Such an accident never occurred to us again.

By early evening, we entered Lake Ontario, at which time the Captain gave me a message so advising the Shipping Board offices in Cleveland. I copied news from NAA-Arlington that night and made up a brief sheet covering the baseball scores, which both the officers at morning mess and later the sailors appreciated. At that time there were no night baseball games and fewer teams in each league than there are today, so Arlington easily had all the day's scores in plenty of time for the 10 p.m. press reports.

Next day we began passing the hundreds of mostly summer places on some of the Thousand Islands, everything from modest homes to virtual castles on a single island. It was a most pleasant experience traversing this beautiful area. We met small craft, cruisers, yachts and full-sized ships coming down the lake. Sometimes people aboard and ashore waved to us as we passed.

Eventually we entered the Cornwell Canal and started all over again the tedious and trying process of negotiating the many locks to get us ever lower toward Montreal. We docked overnight at Cornwell where I went ashore to look around and to buy some Canadian postage stamps. I put one stamp on a letter I had already written to my mother, plus others on post cards to my sisters and friends. I then went back to the ship, copied the news, advanced my watch one hour ahead to compensate for our eastward journey, and turned in.

The next day, we still had to negotiate the relatively few locks of the Lachine Canal to get us down to the river level of Montreal. We fortunately did this without incident. We steamed up the great St. Lawrence River with interesting sights on both sides. Late in the afternoon, the Captain gave me a message to Montreal-VCA, giving them our estimated arrival time (ETA). We finally reached there about 8:15 p.m. There were many ships at anchor, and

we were the third ship from the pier, lashed to two others. Why we were there several days, I didn't find out until later. We didn't have any cargo to unload and didn't take any on. Thus I had plenty of time to look the city over.

I found it very interesting. The architecture of the buildings was, I supposed, European in style; the people spoke a sort of British-accented English involving further traces of a French accent. It was far different from any city in the United States, where I had traveled quite a bit with my parents. The traffic kept to the left like in England, and the mail boxes were all painted red, as they were all over Canada.

For some reason, there were quite a few fights on the ship next to ours, the one we had to cross (plus another) to get ashore. Their first mate finally got things under control with a stilson wrench in his hand.

There is bound to be a certain amount of trouble among sailors on any waterfront. A bunch of sailors get drunk and get into arguments, often leading to fights over what day of week it is, or something equally serious. The Canadian government in the Montreal area had a wonderful system of waterfront police. They did not wear uniforms or carry guns, and they spoke French and English very well, as well as other languages. They were physically very tough men but were also tactful. Sailors generally respected them. Their responsibility was to prevent trouble along the waterfront from starting, and if it did, to straighten it out. They didn't want to arrest anybody if they could possibly avoid it.

After things had quieted down on the ship next to ours, I decided to take a walk by myself up to town. I stopped at an interesting small cafe on a side

street for a cup of coffee and a snack. It was about midnight when I got back aboard. Everything was quiet and we had no deck watch. Obviously, we didn't need one. The Captain and officers were no doubt asleep and none of the crewmen, all of whom were ashore, had gotten back yet.

I was leaning on the rail outside my radio room, just taking a look aft before turning in, when one of our crewmen from the engine room came aboard very drunk. Somehow he made it up the ladder to my deck, where traditionally he should not have been. He came over to me, and I greeted him pleasantly and asked him if he did well ahsore. He arrogantly replied that he did because he was the toughest "SOB" anywhere. If anybody gave him any trouble, he would straighten them out. He then told me that he had been middleweight boxing champion aboard a "man-o-war" in the Navy.

I assured him that I didn't doubt it and congratulated him. He then began shadow boxing at me and coming pretty close with his fist. I held up both of my hands and kept assuring him that I was sure he was. About that time his fist passed my chin so close I could feel the breeze. Although I had played football and basketball, I was never even a fairly good boxer. But from a sheer instinct of self-defense, I swung back with a hard right to his chin. His head jerked back about a foot and struck the steel bulkhead behind him with a sickening thud and he went down like a wet dishrag and was out cold. "Oh my," I thought, "maybe I have killed the bum and we are in a foreign port."

About this time, one of the shore patrol detectives came hurrying up the ladder and to my relief said, "That's okay, sparks. I saw the whole thing and it wasn't your fault. Is this man a member of your crew?"

"Yes sir," I said. "He works in the engine room.". Then he said, "Do you happen to know where this guy's bunk is?"

"Only that it's in the fo'c's'le," I replied. "I don't know which bunk."

"All right, let's you and me take him down," he said. "I'll carry his shoulders and go down the ladder (stairs) backwards and you take his feet and come down forward." This we did. It was a bit of a distance past the quarter deck hatches and into the fo'c's'le, and the guy was heavy, but we made it.

Fortunately, there was no one in the place, sleeping or otherwise, and we poured him into the nearest empty bunk. The waterfront patrolman thanked me for assisting him as though this were the most ordinary thing in the world, and proceeded on with his waterfront beat. I saw the sailor a couple of days later and he spoke pleasantly to me, so apparently he had no recollection of the incident. That was the last fist fight I was ever in.

Next day I visited several ships, both American and British, tied up nearby. One was a beautiful ship, the former German WALDENBURG, with a friendly English crew. Another was a U.S.S.B. vessel, the LAKE FAIRPORT. I also received a visit from the radio operator from the LAKE HARMENIA. All of us would eventually be up the St. Lawrence to the sea.

That night, the first mate tried checking the time signals from Arlington with me, but they didn't come in strong and steady enough. I couldn't get the ball scores either. Next morning we began taking on what seemed like an endless stream of large blocks of ice. Our refrigeration plant had broken down soon after we left Toledo, and several extra days at the pier in Montreal had

been spent in an unsuccessful effort to repair it. Thus we took on all the ice we could, to hold us over until we reached a port where necessary work could be done to put the refrigeration equipment into proper operating condition.

Leaving Montreal behind, we worked our way up the beautiful river until we were within radio range of Quebec-VCC. The Captain had me send them our arrival time. When we reached port, no pilot came aboard to take us to a pier. Instead a special officer took his place. His job was to adjust our ship's compass so that it would read correctly no matter what direction our heading might be. He had us sail around in big circles for quite some time while he sighted church steeples and other familiar landmarks until he pronounced the compass in proper working order. This was an adjustment that seldom would be made except on a new ship, so I was glad to be aboard when it occurred. I never knew why, but from this time on I sent a message for the captain to the U.S. Shipping Board office at Cleveland at least once each day.

Beyond Quebec, the river began to widen noticeably and the scenery seemed to become more wild, with fewer and smaller settlements along the shores. Everything seemed more remote and desolate, but in a beautiful way. I began to get the feeling that we were a long way from anywhere. Also, even though it was summer, the weather was gradually becoming cooler. We kept heading north and a bit east. It rained now and then, but mostly we were in sunshine, which made the whole scene pleasant.

The river traffic diminished as we left Quebec astern, and we met only two downbound British cargo vessels that passed quite some distance to our port side. By this time, I was convinced that we were not heading for England. With our refrigeration system not operating, we would probably go to some east

coast port for repairs.

I was leaning on the rail just outside my radio room looking aft when the first mate came up to me and said, "Sparks, we are going to put into a place called Clark City in about an hour. We should be giving them our ETA now, but the captain is a bit under the weather and said he will let you know himself when to do so. I must tell you in confidence that sometimes the old man drinks too much and becomes a bit difficult. Otherwise he is a splendid captain, so do whatever he tells you, no matter how unreasonable he may seem."

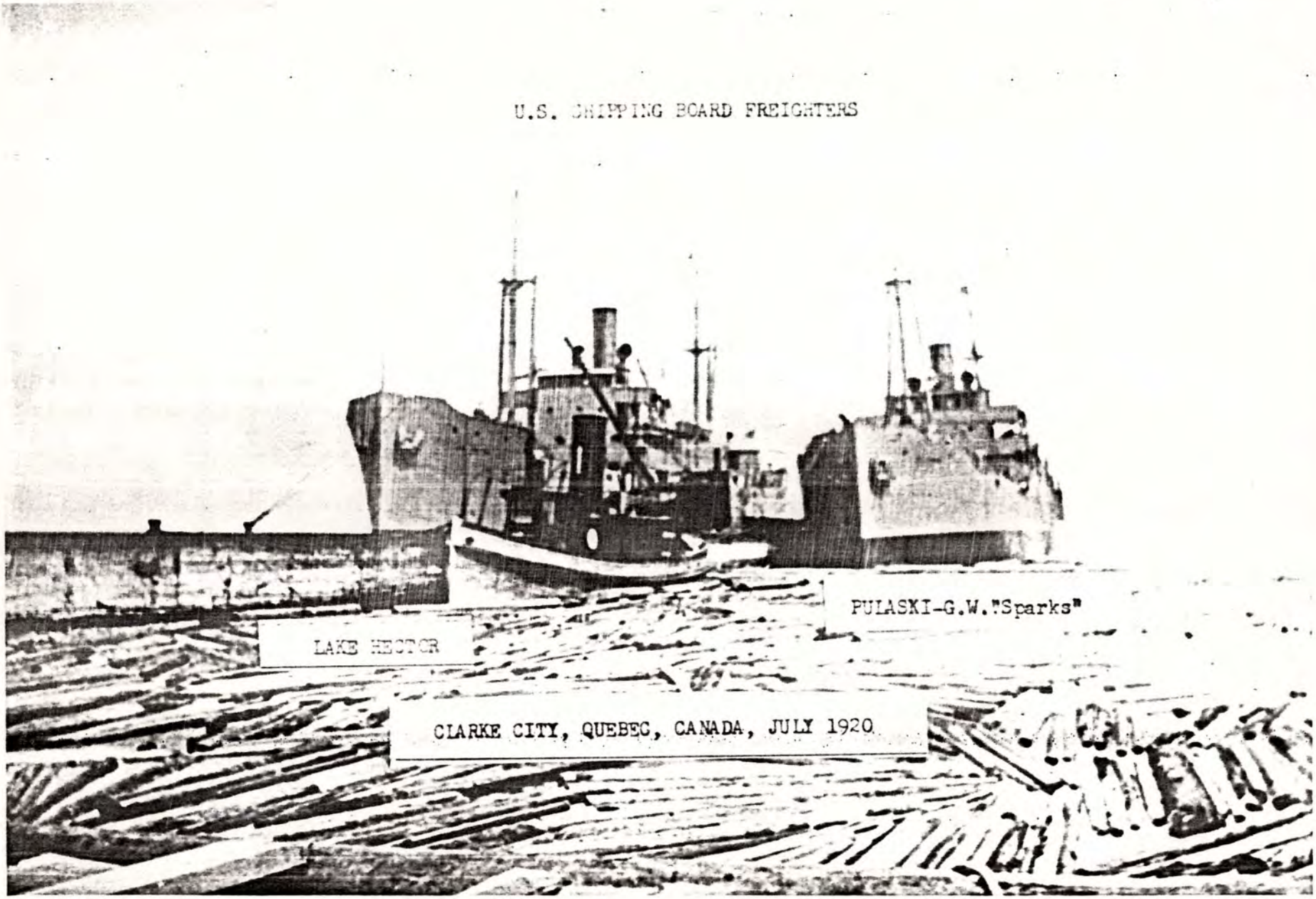
"Thanks, chief, for the tip," I replied, "and I will keep it to myself." Then the mate told me to get to my instruments and to expect a call from the bridge. As soon as I got to my room, I looked up the call letters of Clark City, which were VCK. I hadn't heard them at any time during my listening period. Pretty soon the speaking tube from the bridge whistled. I answered, and the mate said, "Come to the bridge at once. The captain has a message he wants you to send." I hurried to the bridge, and the captain gave me the message, which was simply our ETA, which should have been sent sooner. "Report back to me as soon as you have sent it," said the captain.

I hurried to my instruments to get the message off at once. As the VCK operator was signing off, he added, "Come out and see us while you are here. They will tell you at the pier how to get here."

"Thanks," I replied. "Will do." I signed off quickly and hurried back to the bridge to report to the captain as he had ordered.

Clark City is a rather small settlement with a long pier jutting out into

U.S. SHIPPING BOARD FREIGHTERS



LAKE HECTOR

PULASKI-G.W."Sparks"

CLARKE CITY, QUEBEC, CANADA, JULY 1920

the river. It is across the bay from Seven Islands City, about a hundred miles south of Anticosti Island. In 1920, there were thousands of acres of pine trees in the area. Lumber companies were cutting them down, shipping them to a processing plant on a railroad spur, where they ended up in bales called simply pulp wood. This was shipped, usually to New York, and finally ended up as newsprint paper. Many of the tree trunks were made into large rafts by chaining the logs together. These rafts were towed either up or down the river to one spot as necessary. They were then made secure until there were several acres of them clustered together and made fast to the downriver side of the pier, leaving plenty of room for ships to tie up on the other side. Alarmingly, we were headed right for the logs.

Reaching the bridge, I was surprised to see the captain himself at the wheel instead of the wheelsman, who was standing to one side. The "old man" appeared to be substantially "under the influence," but he was keeping his balance because his hands were on the wheel. The chief mate was at his side. Even with my inexperience, I was sure we were going too fast.

About that time, a tug was approaching us and was shortly along our starboard side, which was the customary procedure. The mate said to the captain, "Tug alongside, sir. Shall I heave her a line?"

The answer was always in the affirmative, but this time the captain said, "Hell no, I don't need no damn tug. I'll take her in by myself." The mate stepped outside the wheel house, looked at the tugboat captain, shook his head "no," and put up his hands in a helpless gesture. The tug captain, with a wonderful sense of understanding, dropped astern and awaited the inevitable.

Even a small ship like the PULASKI, carrying no cargo, moving along at 10 or 12 knots, represented a striking force of frightening size, and we were heading into the approximate center of the log raft, made up of hundreds of tree trunks all heavier and longer than fence posts, but smaller than telephone poles.

In desperation, the mate said to the captain, "Shall I ring the engine room to stop, sir?"

"Hell no," yelled the captain. "I'll let you know when." At that moment, the second mate rushed onto the bridge, stepped up to the captain asking him if he should take over. Instantly, the first mate signaled the engine room to stop and then to reverse engines. But it was too late. We were already plowing into the logs which were flying up as high as the bow. Fortunately, none of them landed on the pier. Somehow the second mate and the wheelsman got the "old man" to his quarters. The first mate had plenty to do, taking directions from the tug that had somehow gotten quickly alongside. Before too long we maneuvered around to the proper side of the pier and made fast. Aside from breaking or pulling loose many of the chains, no serious damage was done, but there must have been a lot of paperwork getting things back together and in order. If it hadn't been for the logs, we might well have ended up aground on Clark City's only Main Street.

Next morning, I decided to go and visit the VCK wireless station which was situated several miles inland near the plant that processed the trees into bales of pulpwood. The only way to get there was to ride out on a train of empty flat cars that had rather heavy wooden poles making a sturdy screen at each end. I was advised to stand up and hang onto one of these poles as we got under way so as not to get thrown off as we rounded curves. The train stopped at the plant,

and pulp wood bales were immediately loaded on the flat cars, standing on end and tightly packed. The poles at each end held them all together. The man in charge told me it would take them quite some time to complete loading and to go on over to the wireless station and visit the operators there. He would blow the locomotive's whistle five minutes before leaving for the pier, and even if I missed it, they would be back again for another load in about an hour.

There were three operators at VCK. They didn't handle a great deal of traffic but were on duty 24 hours. They had a very comfortable old fashioned Morris chair in which they sat during their watches. They had decided that each operator would take a full eight hours shift straight through, although they did change the order at intervals. Also, no one stayed in this or several other more or less desolate locations up and down the river for more than three months. There wasn't much to do in the way of entertainment, and women were scarce. It was like doing a stretch on an oil rig or in a lightship.

The operators were three really fine fellows. They managed to get along very well with each other and do a good job. Remember, this was a spark wireless station. They were all very friendly to me.

My ride back to the pier was a bit more adventurous, because while the train went around curves, a bale or two of pulp wood fell off the car. I was glad that I had a good hold on one of the end poles. It was a wild ride.

Altogether, we were at Clark City about two weeks getting a full cargo of pulpwood bales. This was loaded by a large gang of the most motley crowd I have ever seen in action. They were men of every race on earth: Orientals, Europeans of many nations, Indians, halfbreeds, and so on and unbelievably on. They apparently worked from dawn until sunset with incessant yelling, shouting and bedlam that would, I am confident,

have challenged the mob in the construction of the Tower of Babel in the scriptures. What language prevailed or how anybody ever understood any orders was a mystery to us. Our chief mate referred to them in a derogatory manner.

They managed to get us loaded with, as far as we knew, no injuries to any of them, which was a miracle. Our own seamen got the hatch covers in place and a few of the cargo loaders swept the deck. We were pretty well "ship shape" and would sail tomorrow.

That evening I went along with some of our crew aboard a large launch crossing the bay to Seven Islands City, which was a pretty small settlement for such a name. About all we found there was a sort of general store with a couple of female clerks who looked like Eskimos. They were very friendly and polite, but there wasn't much that we could buy from them. I bought some chocolate drops covered with paraffin. I don't know why they were so covered because it was rather cold there most of the year rather than hot.

One oddity we experienced that evening was being bothered by mosquitoes, even though it was cold enough for us to see our breath. Another interesting item was the very great difference between low and high tides. This gave the mates a bit of concern because the mooring lines had to be taken in or let out at intervals around the clock. We used a ladder to get from the ship to the pier. When the tide was high, we climbed down the ladder to get to the pier. When the tide was low, we climbed up the ladder to pierside.

Finally, with everything in order, we cast off and headed up the river and began bearing east, and then a bit south of Anticosti Island, then a bit more south heading for the entrance to Canso Gut, a narrow passage between Cape Breton Island and the major portion of Nova Scotia heading for the Atlantic. A heavy fog came up suddenly,

the first one of any consequence we had encountered. We used the ship's whistle frequently as a warning to any vessels that might be approaching us. One of the old-time seamen told me that the echo of the ship's whistle off the sides of the Gut, which was high on both sides, helped in navigation. I don't know whether that was true or not.

I hoped that the captain would not have a notion to take over the wheel. Gradually, the water was no longer smooth, but was getting a trifle rough. We also began to smell the sea. Finally we broke into fairly clear weather, but the sea was a bit rougher--very rough, as a matter of fact, when we really entered the Atlantic. This was especially noticeable after leaving the smooth waters of the St. Lawrence. Even though we were loaded, we pitched and rolled a good bit, and now and then a wave banged over the bow. I was reminded of the Caribbean storm I went through as a boy, but we were not in any weather that could be described as a storm.

In due course we arrived late one afternoon at Halifax, Nova Scotia. The terrible effect of an explosion of a munitions ship in this harbor a few years previously during World War I was still evident. It was a desolate sight in spite of all that had been done in repairing piers, buildings and bridges. It was reported that one of the ship's anchors had been blown several miles inland. I could believe it.

As I walked away from the pier where our ship was moored and started uphill towards town, I encountered a well-dressed middle-aged man. He acted somehow as though he were waiting for me. He spoke to me pleasantly, called me "Sparks" and asked if we had a good trip and what could he do for me. I told him that I would like to find a good restaurant and have some food different from what we had aboard our ship. (Incidentally, on our trip down, I had sent a message to the Shipping Board advising that we had thrown 700 pounds of spoiled meat over the side because of our lack of proper refrigeration.)

"Come with me," he said, "and I will show you where to find a good place." We walked up the hill from the ship until we reached the top of what was apparently an important street parallel to the harbor. There was a very expensive Canadian automobile parked at the curb. I don't remember the make of the car, but it was a big limousine with a middle-aged woman in the front seat and a girl about my own age in the back.

The kind stranger asked me my name and introduced me to his wife and daughter. The latter was a very charming young lady. I entered the auto and pretty soon we were heading for the main part of town and the stranger was explaining the various points of interest as we drove through the down-town area of the city. All this was rather baffling - I was barely 18 - and hadn't been off the ship for 10 minutes!

I was in the back seat with his most pleasant daughter. When the stranger started to drive out of town and into the country, I became a little apprehen-sive, but didn't figure that much harm could come to me because I wasn't anybody of any consequence. Pretty soon we arrived at the biggest carnival I've ever seen in my life. The stranger parked his car, told me to come with him and told his wife and daughter to wait there and that we'd be back after a while. His family didn't seem to mind, which struck me as rather strange.

First we stopped at a hot dog stand because he knew I was hungry. Then we went into the first show of the carnival. The shows were arranged next to each other in a very large circle with a merry-go-round in the center. We went into the first show, which he paid for. Then we went into the next one. I said I'd pay for it and he agreed, but insisted on paying for all the rest of the shows. Several times I thanked him and suggested that we should get back to his wife

and daughter, since a lot of time had gone by. But he said, "Don't worry about them. They don't mind waiting." And for some reason I have never been able to fathom, when we got back to the car, they showed no signs of displeasure over our long absence.

By the time we got back into the city it was dark, especially on the street along the waterfront. Finally, we came to a stop and the stranger said, "Take this lane downhill to the right and you will find your ship. It's the same hill we came up." I thanked him, his wife and daughter individually and profusely for their kindness. He asked me when we were due to cast off and I told him 4 a.m. He then gave me his name and address and said, "Any time you are in our port, get in touch with us. We would like to have you visit us."

Months later, I wrote him a thank you letter but it came back stamped, "No such name. No such address." Who these people really were or why they treated me so well, I have no idea. It was soon after World War I. Possibly he had lost a son my age at sea during the war and made a habit of befriending sailors who reminded him of his son. I assure you that I did not use alcohol or drugs then or any time later, and I assure you that this story is the gospel truth and that the reason for the stranger's kindness is still a complete mystery to me.

Back at the ship, we began taking on a deck cargo in the nature of used machinery. This was a lot of old, very heavy and more or less worn machinery, steam boilers and odd pieces of heavy iron, corner braces, etc. The mate asked me to come up to the bridge and watch the operation which, he told me, was run by a father and son. The father was aboard our ship giving directions to his son, Johnny, who operated a big crane lifting the heavy pieces over our fore deck. It was very dark and the lighting was very limited. Neither I, the mate

nor the father could see Johnny or any part of his crane until the boom swung up and over our forward deck, with the heavy load at its end. Fortunately, Johnny's reflexes and his rapport with his father were very keen. A heavy piece would come swinging in and the father would simply say, "Ease her up a bit, Johnny," or "Ease her down a bit, Johnny," or "To your left a bit, Johnny," and so on. Just how much a bit was, we never knew.

When the father thought the piece was over the right spot of the deck, he would say, "Ease her down steady, Johnny," and Johnny would slowly let the load down toward the deck. When, in the father's judgement, the load was close enough to the deck, he would call out, "Drop her, Johnny." As soon as the piece hit the deck, the father, with remarkable speed and agility, would get the chain unhooked and call out, "Take her away, Johnny." Then the whole process would be quickly repeated.

One very heavy piece swung aboard, and in the mate's and my judgement, it was way too high above the deck when the father said, "Drop her." It hit the deck with a sickening thud, leaving a dent in the deck plates several feet long and about a foot deep. Next a very heavy piece looking to weigh several tons came swinging aboard. It was fairly high and heading for the wheelhouse where the mate and I were standing at the rail. We were both so sure that it was going to hit the rail that we both instinctively fell flat on the deck. At the last possible moment, the father sang out, "Ease her up a bit to your left, Johnny." The cargo boom missed us by not more than a foot. It was a terrifying experience.

Finally all the junk was loaded. Other than depending on the machinery's weight to hold itself in place, there was no practical way of lashing the stuff

down. Anyway, we cast off on schedule at 4 a.m. Next day, we got into some fairly rough seas, and at one point the mate ordered, "Hard over to port" to avoid a heavy wave in our course. With that maneuver the whole deckload slid and tumbled to the port side, giving us a seven degree list. The next watch turned the ship hard to starboard, and the load once more slid all the way over to the other side.

This caused quite a commotion in the galley. All the pots and pans on the galley stove slid and piled up with some of them falling off the end of the stove, despite a low rail around its top. I'll leave the galley crew's curses to your imagination.

On the second day out, the mate brought me a copy of the ship's position as calculated at noon. He ordered me to send it to the company through any coastal station that I could reach. I sent it via NBD-Bar Harbor, Maine. This position report was called a "TR." The ship's position was supposed to be calculated every day at noon, if possible, and sent out quickly to any coastal wireless station in range. Bearing the prefix TR and the ship's name, the position would be forwarded to the ship's owners. In this way, if all went well, the owners would know the approximate position and general progress of their ships every day.

As is often the case in the area along the Nova Scotia and New England coasts, we soon ran into fog. I had read that it was possible for a ship to get radio bearings from certain land stations along the coast, and I had heard other ships doing so. Pretty soon the captain told me to get a bearing. He didn't ask me if I knew how. He just ordered me to get it and I replied, "Yes, sir." By that time, from listening to other ships, I had the procedure pretty well figured

out. By today's standards, and remembering that I was using a spark wireless, the whole process was extremely crude and inaccurate. But at that time it was infinitely more valuable than "heaving the lead" to show how deep the bottom was, while also using dead reckoning, which wasn't very accurate.

This is what I did. I'd call one, or preferably two, land compass stations using the signal QTE, which meant, "What's my bearing?" or "Please give me our bearing." I might call Bar Harbor, Maine, and Cape Canso, Nova Scotia. One of them would respond by advising me to go ahead and send two dashes, which was the letter "M," and then three dashes for the letter "O." This procedure gave the land station the sounds "dah dah—dah dah dah" over and over. While I was sending these letters both stations would determine our bearing by turning their large loop aerials at either minimum or maximum strength toward my signals. This gave them a reading. Then the key station would call me back with the information that my ship's bearing from true north from Canso was so many degrees, and from Bar Harbor, so many degrees.

I would then immediately get this information to the captain or to whomever was in charge on the bridge. He would plot the bearing lines on a chart. If the bearings were absolutely correct, we were thus somewhere out to sea on each of the lines, more specifically, at the point where the lines intersected. It was up to the judgement of the navigation officer to make the decision about our position. If I could get bearings from either or both of the same stations again in about a half hour, this would help in establishing our location's accuracy.

This was a marvelous navigational aid in the early days of wireless. It was a bit hard for me at first to read the compass stations' dots and dashes, because

in a fog the ship's whistle would blow every minute and a half. This really shook me up, making it very hard to hear the signals in my headphones. But before long, I was able to handle it by using greater concentration.

One day, just after being given our bearing, the compass station issued a warning that they had just given bearings identical to ours to another vessel heading toward us. This indicated that we were dangerously close to another ships and might be on a collision course. I ran with this information to the bridge. The fog, as seamen know, does strange things to sound. The captain immediately cut our speed down to a quarter (we were already at half speed). I can still see the captain and first mate with megaphones - like the college kids use to lead cheers - up against their ears as they tried to pick up the sound of the approaching ship's whistle. I communicated with the wireless operator of the other ship, which was a Canadian Fisheries vessel. We must have passe' very closely, but we never saw each other.

During the rest of the trip, we were in fog most of the time. I was greatly impressed by both the Nova Scotia and New England fishermen we encountered as they worked in their relatively small sailing vessels far out to sea. Finally we "rounded the horn" at Nantucket Light Ship in a bit of clearing weather, headed westward, and soon, picked up Ambrose Light Ship. A short time later a sloop came out and a harbor pilot came aboard to take us on into New York port. We passed the Statue of Liberty far off our port side, through the whistles of various craft in the harbor, through busy ferry boats crossing back and forth in the distance. Finally we passed under the Brooklyn Bridge and moored just beyond it on the Brooklyn side of the East River.

I took a trolley over the bridge to report to the Ship Owners Radio Service

office. Incredibly, I met my Aunt Bertha from Grand Rapids, Michigan, quite by accident in the noonday crowd on Broadway. We had a very pleasant dinner together that night in the big city.

My ship, in the meantime, had been sold after the unloading of the deck machinery and the many bales of pulpwood. She was due to leave for Rio in about a week, and I was offered the job of radio man as a member of her new crew.

I had a very pleasant time seeing many of the sights of New York. I had been to the Big Apple several times with my parents, in addition to sailing from there to Panama and return. Once I had seen a show in the famous Hippodrome. This theater had a very large stage of removable floor covers with eight feet of water underneath. One routine depicted the landing of Columbus during which a real boat was rowed to a sandy beach, all on the stage! The theater lights went out for less than minute, and when they came back on, Grand Central Station was portrayed, with hundreds of people hurrying back and forth to the various gates. This was truly remarkable.

I had seen many of the tall buildings as a child, but that was a very long time ago, and now I wanted to see the sights again, especially the Statue of Liberty. It was a bit of an adventure getting from the 21st Street Pier in Brooklyn, where we unloaded after being moved from our spot under the Brooklyn Bridge, to downtown New York. But I had plenty of time, so I didn't mind.

I began to think of my incredible good fortune. I had really gotten a job on a ship - a brand new one - had sailed the length of Lake Erie, gone through Welland Canal, across Lake Ontario, through the Cornwell Canal, past the Thousand Islands, down through the Lachine Canal with a stopover at Montreal, onward up the

great St. Lawrence River to Clark City, where we put in for a couple of weeks taking on a load of pulpwood bales. Next we sailed through Canso Gut, out into the open sea and southward into Halifax, through the fog along the coast, where I learned to obtain radio bearings from the land stations, and we finally arrived in the harbor of the greatest city in the world, tying up right under the famous Brooklyn Bridge. The family scuttlebutt had it that my great uncle Henry had been some kind of a boss in spinning the cables of this famous bridge, and here I was right under it. I had realized my boyhood ambition of becoming a wireless man on a ship, and I was soon to continue bound for Rio de Janiero. It was just too good to be true.

In my youthful ignorance, it never occurred to me that my mother might not share my enthusiasm for the South American trip. I had sent her a letter when the captain assured me that I had the assignment. Strangely to me, she became alarmed. My father had passed away many years before, but my mother still knew many important and influential people in various levels of government. She must have gotten in touch with them, because one evening an officer of considerable authority over ships and crews in the New York harbor area came aboard, checked with the captain, looked me up and said, "Are you sparks aboard this ship?"

"Yes, sir," I replied. "You are the man I am looking for," he said. "I have instructions to advise you to leave this ship within 24 hours and to return to your home in Ann Arbor, Michigan immediately. If you don't have the money for the train fare, I will advance it to you."

"I have enough money," I said. "How much?" he asked. "Ninety-eight bucks," I replied.

"Let me see it," he said, so I got it from my cabin and counted it out for him. "Have a nice trip home," he said, and then he walked quickly away without awaiting any response from me.

Naturally, I was terribly disappointed in missing what I was sure would be a wonderful trip to Rio. I vowed that I would sail again someday as "sparks."

CHAPTER IX

BACK ASHORE -- AND AT THE UNIVERSITY OF VIRGINIA

My disappointment at not making my South American trip was equaled by my mother's relief in having me home again just in time to start my senior year at Ann Arbor High School, where I played football on the 1920 team. I did not graduate with the class in the spring of 1921 because I had missed some credits necessary for graduation during the last half of my freshman year at San Diego High School. This resulted, you may recall, from a street car accident. So I took enough extra classes in summer school to graduate late and to be qualified to enter the University of Michigan's School of Electrical Engineering in Ann Arbor in the fall.

At home, I continued to enjoy my hobby as a ham operator. My three watt, single three-element tube transmitter did work with voice pretty well. Of course, it was much stronger with code and a key. I recently discovered a note I had made on a piece of paper in an old book in which I put down everything about it—even voltages, how many turns of wire were on the coils, etc.--and it's dated May 19. It doesn't say what year it was, but it certainly must have been 1920. Beyond that I can't say for sure, but it was a very good transmitter and it had a single five watt tube, which I think was called a Moorehead. My notes read, "Received a card from 2AFM Long Island. He heard me night of so-and-so," and again the date is missing. Now that was quite a long way for a transmitter of such limited power to carry, considering normal interference.

Below that the entry says, "Work," which means two-way communication. I worked 8BA Detroit with voice—that means that I talked to several other amateurs. In one of the entry's finer notes it says, "Using Western Electric Tubes." I was under the impression that it was a Moorehead tube, but I guess

that it wasn't. And yet above the diagram is a note: "Using Moorehead Amplifying Tube." Well, it doesn't matter now!

At a later date, I talked to Clyde Darr in Detroit, 8ZZ, and he said that I came in so loud that he couldn't copy anything else when he was receiving me. And I was some 30 to 40 miles away! So I had quite a satisfactory and powerful small transmitter, the first one I had ever built.

It was just about time for college classes to start when, to my great surprise, my mother said, "How would you like to attend the University of Virginia?" I was flabbergasted by the idea, but living a school year in new surroundings seemed most pleasant, so I quickly agreed.

This was a beautiful and wonderful university, having been origanally designed, built and operated by Thomas Jefferson. He stressed honesty, truthfulness and integrity "from one gentleman to another." The university had a splendid policy of assigning their best professors to the freshman class.

While I was there, the fellows had a radio club in which I was most active. We had an excellent antenna system that was out in a golf course some distance from the Engineering School. It had been put up by the Signal Corps during the First World War. We all had parts from our ham rigs sent down to us from home and we pooled them to make as fine a transmitter as you could ask for. Of course, it was only one kilowatt, but it worked well because our aerial was on high ground between two 80-foot masts. At that time we had a Paragon amateur receiver, one of the very first factory-made such devices.

First we worked our equipment in a shack between the masts on the golf course. I wasn't more than 10-feet square, but it did have a roof on it

on it and was waterproof. It was awfully cold out there and there was no way of heating it except with a very small stove, but we didn't have anything much that we could burn in it. Sometimes we used to put a blow torch in the stove and let it run to get some heat! One of the University's engineering professors continually let us use a top-floor room in the Engineering Building. We decided that we ought to rig up a remote control system in the Engineering Building and control the shack's transmitter from there. It was a good half mile or more from the Engineering Building to the shack, and we thought of all kinds of different systems. First you had to turn on the transmitter, then you had to have another control to send the dots and dashes after it was turned on. And, of course, the first thing that came to mind was a pair of wires for each purpose, which seemed quite simple, except that it would require an awful lot of wire and we didn't have any intention of going to that expense.

We finally rigged up a rather clever and very simple device. We had a regular telegraph sounder, and, of course, in the Engineering Building we had access to plenty of direct current—I think 110 volts--and use of a big rheostat that belonged to the University Engineering School. What we did was to run a single steel wire from the Engineering Building where the receiving equipment and keys were, through trees and anything else until we got it to the shack. Of course, if it had been insulated wire it would have been a little simpler, but insulated wire was pretty expensive and there wasn't any wire locally we could have gotten anyway. So we went down to the hardware store and bought a lot of common steel wire. We used insulators and hung the wire from trees as best we could. It brushed against the trees here and there but we had plenty of DC to overcome any loss at these points from leakage.

We connected the wire to the telegraph sounder, and then we would adjust the rheostat to the point where there was enough power to make the sounder operate, which was simply rigged up as a switch to turn on the power. Now, of course, we couldn't throw the whole 110 volts across the wire or it would have burned it up--we knew that much. We had it held back pretty well,experimented with it and were very patient. We'd adjust the rheostat to where there was just enough power to turn on the transmitter. It turned on the power and the rotary gap, which had a motor in it. Then we just ran the wire that energized the sounder to a more sensitive relay, but one that could stand a fair amount of current without damage. Back at the Engineering Building where we had the receiving equipment, we simply put a telegraph key across the resistance that was held back from operating the first sounder, and we shorted that through an extra surge of DC at the end of the circuit --not enough so that it damaged the first sounder, but just enough to turn it on. It would activate the second sounder and that was the one we made our dots and dashes with. We had that one rigged up with contact so that it served as a key. It was a good arrangement all the way around, but it was pretty inefficient when it rained, because there was a major loss of power on our uninsulated line when it got wet. Yet we didn't worry too much about that—we just pushed back the rheostat and got more voltage to overcome it.

This was another typical example of Hams being innovative and using what we had to have a lot of fun. By that time I had already been to sea and was a first class operator, familiar with a lot of techniques about adjusting spark transmitters that weren't generally known. They were no secret, but most of the younger generation didn't know about them. My method was a little unorthodox, but I knew that if I adjusted the spark transmitter a certain way we'd get greater

distance. We broke all kinds of records for distance; for instance, I think we worked New Orleans from there and I used to work a ham way up in Canada. So we had a wonderful time at that station. Of course, we had a special license, a special amateur station in the third district, 3YV. I had had experience with the University of Michigan's 8XA, which I never operated, and then there was the University of Virginia's 3YV, which I operated myself.

About that time, there was a type of antenna used for transatlantic reception called the "Beverage Antenna." There was a Ham by the name of Beverage and I used to work him once in a while. Sometime later he became an engineer with RCA and he developed an antenna which was very long in proportion to its height. It had certain remarkable effects and it was grounded on one end through some resistance or inductance. Well, it occurred to us that perhaps our long telegraph wire, running from the Engineering Building out to the shack, with two sounders in series with the ground, would work as a Beverage Antenna. We hooked up our receiver to it and we heard stations by the millions. You couldn't tune them out very well and everything was on top of everything else. But it did work as a Beverage Antenna, and that was quite a thrill.

The last CW transmitter I had was a 50 watt one--I'm pretty sure it had an RCA Tube and the equipment that went with it. That was about as powerful as you needed because you could get a tremendous amount of distance with it, providing the amateur at the other end could pick your signal out of the hundreds that were in the air at any one time. Like most hams, I was a long, long time in giving up my spark transmitter. Even though we got to the point where it was definitely established that a 50 watt CW Transmitter would outperform a full one

kilowatt spark, there was still sort of a loyalty, a fascination, some kind of a tradition—anyway, a great reluctance for us to quit using spark. But eventually we did; I did long before it became illegal to use spark in 1927--the year I went into business for myself.

Well, that was all the activity concerning amateur station 3YV at the University of Virginia. There were some ten members in the club there and a lot of them were very good operators. We spent a great deal of time transmitting and receiving. Again, there was a camaraderie, a fraternal feeling among the members of the club that is a little bit difficult to describe to anyone who has never had that experience.

Amateurs had developed a very nice custom in which each amateur station had what they called a "QSL Card." The letters "QSL" meant who you were, so that when you received a QSL Card from a Ham who heard your transmitter at a great distance, he was acknowledging that he had heard you. So "QSL" really means one of two things—"Please acknowledge" or "This is an acknowledgement of your signals." It's a nice custom, and a lot of Hams will keep the "QSL Cards" particularly if they're from a great distance away.

Now, in my Ham days, you talked about communications of 500 miles as a very great record. Today, Hams work all over the world, like my good friend, Charlie Gault, 8ZO, who lives between Ann Arbor and Ypsilanti and has probably one of the finest amateur stations not only in the country, I would say, but in the world. He's got three great big towers and all kinds of equipment. Charlie tells me that he has worked virtually every country in the world, even the island of Madagascar, the Antarctic, Russia and so on--and I mean on voice. So it's a worldwide hobby

today, whereas in the old days it was relatively local.

The use of voice didn't develop very quickly because, generally speaking, you could get greater distance with the dots and dashes of the code than you could modulating voice. That was because using voice only picked up a percentage of the power that was going out. The first voice transmitter that I made had a microphone that was simply the mouthpiece from an ordinary telephone, which must have been about as inefficient a microphone as you could get. We simply took one of those and hooked it in series with a coil of wire that was inductive to the transmitter or around the ground wire, and how we ever got enough outgoing signal modulated into voice that you could hear at any distance was something of a miracle. Circuits were developed later that were very efficient, but still you could do better with code than you could with voice.

Then there was the mystique which code had for the old-timers and especially for myself. You see, each operator did use the same dots and dashes to make the letters, but each one had an individual fist, as we used to call the manner in which you give an operator a transmission. It's very much like handwritting. I remember when I came aboard the Great Lakes ore carrier, W.H. MC GEAN. I hadn't been on a day when a neighboring ship called in and wanted to know--you did it all with Q Signals--who I was because he could recognize immediately that my fist, my type of transmission, was different than the fellow that had been there before me (and, of course, he was right).

There was a certain rhythm that you could work into your transmission which was called a "swing." There was a "Lake Erie Swing" and a "Manhattan Swing" and so on, and they were really beautiful to listen to if they were done properly.

When a really experienced man (like the ones at the commercial land stations and naval stations that we worked from the ships at sea) transmitted to you, it was just music to listen to them. They could send a good deal faster in their rhythmic, poetic manner, and you could get it easier than if it were chopped off evenly.

The British operators were usually recognizable. Our operators had the key out at a comfortable length so that you could rest your elbow on the desk of your transmitter, and the key was out beyond that. You worked the key with your arm out straight. The British operators had the key right at the edge of the table. They sat up perfectly straight and the key was under them and they had a very precise, accurate, easily readable code. You could tell a British operator from an American operator, so there was a definite personality that entered into it.

Every spark transmitter had a different tone, a different musical sound to it, which went all the way from a low sound to a high pitched sound. On ships, even in my time, they had gotten away from the rotary gap, except as a second transmitter in case your first one broke down in an emergency. But they used a quenched gap. With a quenched gap, you had a metal surface up against one side of the spark gap, then an insulating washer, and then another metal surface on another insulating washer—a whole series—so that the spark, in order to get from one side of the gap to the other, went through a succession of little gaps. Each piece of metal was quite large and acted as a cooler, something like the flanges on the cylinder of a racing car. This quenched gap had a beautiful musical sound to it, a sort of a whistle—it's absolutely indescribable but it was beautiful to listen to. The United States Navy tried to strike around a 500 cycle note on their transmitters

and then they had their own receivers made more efficient to receive that audio frequency, which gave them a little added efficiency in their own system. Of course, they could work with any other system very well and did, because many naval land stations handled commercial traffic. I guess today that seems a little strange, getting business and the government mixed up, but it worked very well in the old days and I presume it still does if it's being used in that way, although the transmitters today are so powerful that they don't have to be much concerned about it.

An ordinary telegraph key is arranged so that you press down to make contact, you let it go, and a spring pushes it up again. The amateurs used to make what we called the "side swiper." This was simply a bar of metal that was anchored at one end, maybe four or five inches long. We'd solder a dime on each side of it, out towards the end that wasn't fastened, and then a couple of screws or some kind of mountings on which there were another couple of dimes. Thus we made a key. We would wrap tape around the end to insulate the key from our fingers and also to give us a little something more to hold. Now in those days --again one of those things you don't see anymore-- almost every home had a picture molding around the living room and many of the other rooms as well, down two or three feet from the ceiling. If you wanted to hang up a picture you took a brass S-shaped hook and fastened one part over this wooden molding, and then put the picture wire over the other end. So there were always a lot of picture hooks around and we would simply get one and flatten it out on the sidewalk with a hammer. That would give us a very good brass center lever or moving part for our side swiper key. Now the point was that you could strike either right or left. If you were to make the dot and dash for the letter A and you hit the dot on the left side, you had to swing over to hit the dash on the right side, and so on. In other words, every dot and

dash was hit on the opposite side of this side swiper key and this gave a very clean, accurate type of transmission which could not be slurred. Later, they came out with what was called "Vibraplex"--a key that you'd push on one side and it would vibrate with dashes as long as you held it there quite a while. When you shoved it to the other side, it would make just dots and you could get up enormous speed, providing you had someone good enough to run it properly while sending, and good enough to receive it that fast at the other end.

So, the old days of using the code and spark transmitters was indeed an era that was beautiful to have lived in, but it will never happen again. Today we still have code men, but they have trick keys and printers and all kinds of equipment which is marvelous in itself, but offers no particular adventure in using it.

CHAPTER X

THE AMERICAN RADIO RELAY LEAGUE CONVENTION:

MY FIRST TRIP TO CHICAGO

The American Radio Relay League very wisely organized a relay network in various parts of the country, so you could operate as an official relay station, which was somewhat of a distinction. You were obligated to be at your equipment a certain length of time every day, or at least on certain days. I remember that I was an official station and I used to exchange messages with a Ham in Detroit.

I was able, for some reason, to reach Charlotte, Michigan--my signals came in very well there. So Charlotte was my station somewhat to the west--of course, it was north and west, but I was on the east-west network that went through this part of the country. And the Ham that ran the Charlotte station was Chester Wilcox. I don't recall the call letters of his station. Many years later, in Charlotte, Michigan, there was a radio company called "Wilcox and Gay," and Chester Wilcox was one of the partners. The company has long since gone out of business and I don't know if either of them are still around. If they are, I haven't heard anything about them. But those were very interesting days because we would send messages, perhaps from someone as far away as the East Coast, going all the way to the West Coast, and then we would get answers back to these messages. They were mostly personal messages and we took great pride in getting them accurate. Once in a great while there would be one for someone in Ann Arbor and I would deliver the message to him. It was a lot of fun and it took a lot of teamwork and some discipline because you owed it to your other two partners to be there when you said you would be. It worked because of the highly cooperative spirit between Hams.

Sometimes we would make a special effort to go far away and visit some Hams. I remember Elmer Reeves and I--he had a car and I didn't--drove all

the way from Ann Arbor to Lansing. At that time there were no paved roads anywhere--you had to go from Ann Arbor to Dexter to Stock Bridge and Mason and so on, and finally get to Lansing. We visited several Hams there, and strangely enough, I can't remember the names or call letters of any of them. But we were very well received, of course, and we managed to get back the same night. I remember we were in a very bad rainstorm and there weren't such things as windshield wipers. On the Model T Ford your windshield was split horizontally in two pieces on hinges. You just raised that top piece up and looked through the space in between through the rain and did the best you could. We didn't think we were bad off because that's the way it was.

On that subject, I remember some years later I had to go to Chicago in a hurry to get some tubes and I drove all the way there without stopping, which was quite an accomplishment, as you'll see later. I had a Chrysler which was quite modern at that time, and I had a hand windshield wiper. In other words, I had to run that windshield wiper with my left hand and steer with my right. It rained almost all the way to Chicago, and I'm telling you, you used muscles in your left arm that you didn't know you had when you do something like that. But I made it alright.

We never had a formal radio club in Ann Arbor. We did see each other quite frequently and Hams would get together socially sometimes in one or another's house. We'd help each other with construction items and all that sort of thing.

In 1921 the American Radio Relay League announced that there would be in Chicago the "First National Radio Convention" ever held. Some 1500 people

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The American Radio Relay League, Inc.

Headquarters, Hartford, Connecticut

Appointment as

Official Relay Station

This Certifies that Amateur Radio Station 8CBO, located at ANN ARBOR, in District No. 1 of the ~~STATE PROVINCE~~ of MICHIGAN in the CENTRAL Division, and whose owner, G.E. WEDEMEYER, a citizen of the ~~DOMINION OF CANADA~~ UNITED STATES OF AMERICA is a member of the A. R. R. L. in good standing, is an **Official Relay Station of the American Radio Relay League.** This appointment shall remain in effect as long as the owner is a member of the A. R. R. L. in good standing, provided the operation of the station complies with the following requirements:

1. This station shall comply with the radio laws of its country, particularly with respect to wavelength and the observance of quiet hours.

2. This station shall lend its full cooperation in times of national or local emergency, particularly in emergency railroad communication, adhering to methods adopted by the A. R. R. L. for handling this service, and the station shall be in readiness at all times for such cooperation.

3. This station shall handle duly authorized messages in accordance with rules and regulations prescribed by the Traffic Department of the A. R. R. L., particularly with respect to delivery of messages; and all messages either shall be relayed within forty-eight hours after receipt or shall be delivered or mailed to their destination.

4. This station shall report its activities in the manner prescribed by the rules and regulations of the Traffic Department.

In Witness Whereof, we have hereunto affixed our signatures this 24 day of APRIL 1924

Traffic Manager

Division Manager

I, the owner of the amateur radio station to which the above call has been assigned, do faithfully promise that this station will be operated and conducted at all times in conformity with the above requirements and, to the best of my ability, in a manner which will reflect credit upon the American Radio Relay League.

APRIL 21, '24
Date

George C. Wedemeyer
Station Owner's Signature

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showed up and that's a lot of people in 1921, considering travel conditions and the general financial status of the average person. The convention lasted several days and it was a wonderful experience. I still have the badge that they issued to us--it is a very nice enameled item with some black and yellow ribbon on it. I remember, among other things, that while we were in Chicago we went up to the Great Lakes Naval Training Station and visited their arc transmitter. I never quite got over seeing 40 amperes registered in the outgoing transmission antenna. Forty amps, even at high frequency, is an awful lot of amps. We were well received there and taken through the school--they were training radio men for the Navy.

We had to make arrangements to get to Chicago. Faren Riegard—whom I mentioned a while ago, the Ham with the marble panel transmitter whose father was on the faculty—said, "OKay, you fellows can use my father's car to drive to Chicago." Now that was quite a thing for him to do, quite a gesture of trust in us, because Elmer Reeves, George Stalker, and Faren Riegard and I were the four that were going. Faren's father said, "You simply cannot drive at night," and we agreed that we wouldn't. We couldn't have anyway, even with his permission because at that time there were no marked routes between Ann Arbor and Chicago. I don't think there were marked routes anywhere, with the possible exception of the Lincoln Highway. We rode on gravel roads most of the way. In those days, everybody had their favorite way of getting from one town to another going east or west. Today you can travel on I-94, hold your speed at 55 miles an hour, the legal limit, and make it from Ann Arbor to Chicago in five hours. So this was a kind of wild, adventurous dash on the part of four adventurous young men, all of them Hams. We left our house promptly at 7 o'clock in the morning, the four of us. My grandmother, on my mother's side, lived in Kalamazoo, which was little over 100 miles west of

Ann Arbor. I had driven to Kalamazoo once or twice with someone else and I knew how to get there.

Well, we made record time—from Ann Arbor to Kalamazoo in five hours. We finally made it to Michigan City, Indiana, that night, and we stayed in a hotel for a dollar apiece. Now, a dollar was an awful lot of money at this time and we didn't have much money, but we had it figured that we could just barely make it to the convention and back. Gasoline didn't cost very much, and of course as slowly as we were driving, the car gave pretty good mileage, so that wasn't too much of a problem. We got to Chicago by the next night and put up at the YMCA Hotel on State Street. The YMCA Hotel is still there. It was an ideal spot for people like us because you had a very small, almost cell-like room, but with a clean bed, a chair and table, a dresser, and a common shower room and running water. All we really wanted was a place to sleep. It cost 75 cents a night, but if you got up fairly early it cost only 65 cents, so that's what we all did. For a dime we could get a cup of coffee and sweet roll as big as a saucer and half an inch thick. So it worked out that we were sleeping for 65 cents a night and eating for 45 cents a day. In those days a big hamburger was only a dime and the elevated train—the L's, as they were called, in Chicago—were what we used to travel and they were only a nickel—so we were doing pretty well.

The Convention met at Senn High School and great people were there. The famous Hiram Percy Maxim opened the meeting formally—that was the famous IAW. There were technical discussions by some of the best people in the field and some very interesting programs, as well as an exhibition of products at the Naval Armory. The Convention was operated a good deal like our modern day Electronic Parts Show. Manufacturers of different products had booths or

areas assigned to them, and it was something to behold, smell and hear, because there were all kinds of spark gaps in operation. There were people who made spark gaps like Ben Wood, I recall, and representatives of the transformer companies. Everybody had several of these spark transmitters going wide open, and they made a lot of noise.

We had just enough money to get there and back, but it didn't worry us. But our friend, Faren Riegard, had very poor eyesight--he wore thick glasses--and somehow got shortchanged on a 20 dollar bill. He used a 20 dollar bill to pay for something and was given back change for a 10 dollar bill. Well, that put us 10 dollars short and it was a very serious situation. The last night of the affair there was a big dinner at the then- brand new Edgewater Beach Hotel in Chicago. The Edgewater Beach was built right on the lake--you could walk right out the door of the hotel onto the beach. It was an imitation of a Miami Beach type of hotel. Today the land is filled in half a mile from there into the lake and there's a road with double highway going by. But at that time it was a brand new hotel, very beautiful. It was sort of the end of an era when hotels were decorated with oriental rugs and gilded furniture.

George Stalker and I had each bought a ticket to this momentous dinner before we left, so we couldn't help the money shortage in any way. Since we had the tickets we decided that we might as well go, so we told Reeves and Riegard to start driving back. We'd go to the meeting and take a boat across Lake Michigan to Benton Harbor and meet them there. This we did. Our poor friends didn't even have enough money to stay anywhere, so they slept in a schoolhouse the night before. We travelled that day to Marshall, Michigan, about 55-60 miles from Ann Arbor. We got there at dark and it was out of the question to drive any farther, so we stopped for the night. Stalker and I

had slept the night before in The Edgewater Beach Hotel. The whole package was extremely reasonable for the dinner and the room and that's why we stayed. So we said, "Well, you fellows can sleep in the car and we'll just sit up on the park bench and walk around or whatever during the night." So Stalker and I stayed up all night in Marshall and spent most of the time sitting on an iron park bench—there were several of them cemented to the ground—and believe or not, those benches are still in that park. I very seldom get into Marshall anymore, but when I do go, I travel on I-94 and I always remember that night. We finally did get home, dead tired but unhurt.

While we had been in Chicago, we noticed that right beside the Edgewater Beach Hotel, there was a special amateur station. It was known as 9ZN. It had a great deal of power and a big aerial. It was quite a sight, located right on the edge of Lake Michigan, and its signals sure had a good start going across the Lake or anywhere else. They set a lot of records for distance.

A few years later 9ZN started to make some amateur radio receivers, and when they advertised them, they called them "Receivers Made by the Owners of 9ZN". They were called "ZN1," "ZN2," etc., and from that came the word "Zenith," which is today Zenith Radio Corporation. I'm sure the present management doesn't have the foggiest knowledge that it all started with the amateur station "9ZN." I remember while we were in Chicago, among other things, we had a boatride on an excursion boat on the Lake. Little did I realize then, 1921, that in 1924, I would sail on an ore carrier, the W.H. McGEAN, out of Chicago. Today a great many of our suppliers are in the electronics distribution business in Chicago. I also have a married daughter who lives there, so we go to Chicago occasionally and I call on the suppliers. Chicago thus has been quite important to me both as an amateur and in later years in the commercial side of the field.

CHAPTER XI

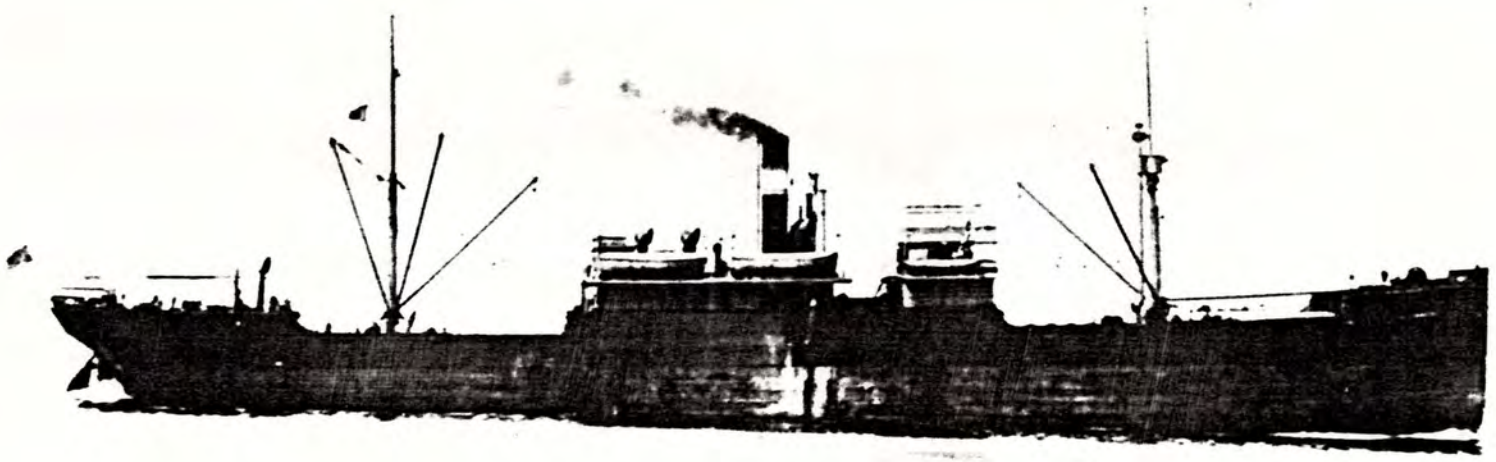
Aboard the Freighter ELIZABETH

I have heard some great yarns from old sailors and they all start the same way: when, where, the name of the ship and the circumstances in which the story begins: "It was in 1920 and I was an AB aboard the OCEAN QUEEN. We was in Valparaiso, Chile. I goes ashore and picks up with this savage gal in Juan's place on the water front where all the sailors go"....and then goes the story.

It seems proper that I should start out in the same pattern. It was in early summer of 1922. I had just finished my freshman year in Electrical Engineering at the University of Virginia and was lucky enough to get a job as radio man aboard the ocean freighter MACOMET, at that time being completely overhauled and reconditioned to put to sea, in the yards of the Newport News Shipping and Dry Dock Co. She had been taken over by the A.H. Bull & Co. and would sail under the new name of ELIZABETH, it being their custom to name all their ships after girls.

Arriving at the shipyard gate, the guard pointed to a tremendous but well worn and rusty ship and said, "Sonny, that big ship there is the LEVIATHAN, the biggest ship in the world. She was a troopship during the war and now they are making her over to be a liner to Europe again. Your ship is right across from her at the same pier so you won't have no trouble finding her, but she ain't gonna look too big alongside the LEVIATHAN." And he was right. The LEVIATHAN was absolutely overpowering to look at, in spite of her rusty, dirty appearance. She would still make a lot of history until finally scrapped in Scotland in 1938. There would be other ships perhaps a few feet longer or perhaps of a little greater tonnage than LEVIATHAN but none greater overall.

A.H.Bull & Co. N.Y. freighter ELIZABETH (Ex Macomet). George Wedemeyer "Sparks" 1922



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Ocean Freighter ELIZABETH(Ex Macomet) Built 1919 by Bethlem Shipbuilding Co. Wilmington, Delaware. GT 3,482

Reconditioned Newport News Shipyard;name changed from Macomet to ELIZABETH, 1922. Length 328' Beam 46.2 Depth 32.9

But to get back to the ELIZABETH, little did I realize the many wonderful experiences I would have both aboard and ashore and the pleasant effects they would have on my life many years later. Looking her over from the pier and reporting aboard, I judged her to be about 3500 GWT and about 325 feet long. Her design was common in that era, with two hatches forward and two on the quarter deck, but with an additional small hatch just abaft the wheel house and officer's quarters and just forward of the galley. This hatch was to play an important part later in one of my minor episodes. I had little trouble locating First Mate Conrad Koopman, a story book name for a mate if I ever heard one. I checked in with him and he showed me to the radio room which included my quarters with a bunk across one end, the wireless equipment (it was spark wireless) across the other, and a small locker for my clothes which was ample since I didn't have many. The door was aft onto the outside deck. It was a good arrangement all around. I liked it.

The mate was a splendid man and taught me a lot. He held top Captain's license and had previously served as a Captain. So had the Second Mate, Mr. Larsen, and also the Third Mate, Mr. Bowers. The Captain was a big stern man of Danish ancestry but unusual in that he had coal black hair. His name was T. Thebauld, a man of long experience. I learned later that he and Third Mate Bowers were old friends and had managed to sail together for years. Sometimes one or the other would be captain and sometimes both would be mates. So we had a very fine group of deck officers. The captain looked me over rather severely and said "Vireless, do you know how to get vireless bearings?" "Yes sir", I replied, and that was that. We must remember that from the start it was Wireless and the fact that the Americans had started calling it radio didn't mean anything to Capt. Thebauld. He was a severe man, but he impressed me as being a very good captain.

1ST MATE CONRAD KOOPMAN
S.S.ELIZABETH-1922

The Mate said, "Sparks, you are now officially a member of our crew. You can eat three meals a day aboard and sleep in your quarters. We won't be ready to put to sea for at least a week, but I think you should check in with me at sometime every day." Needless to say, I did.

So I went out of the shipyard to look over the city of Newport News, Virginia. Walking down a residential street not too far from the shipyard, I noticed a beautiful "ham" (amateur) radio aerial (we didn't call them antennas until TV). It was six parallel wires spaced on spreaders at each end. It was a real good installation, so naturally I wanted to meet the owner as soon as possible. There was a lady old enough to be my mother setting on the front porch. As I came up the steps, she greeted me pleasantly and asked what she could do for me. I told her I was a ham and leaving as operator on a ship in a few days and would like to meet the operator of the ham rig, having noticed the beautiful aerial. "Oh, that's my son Norris. I know right where he is. Now you just sit down here and make yourself comfortable and I'll call him right away. She did, and within a few minutes Norris Krone arrived, greeted me as a member of the family, as hams always did in those days of dot and dash ham communication. As soon as we had exchanged ham call letters and even before we went in to look over his installation, he said, "How long before you sail?" "Some time within a week", I replied. "That's good because you can still go on the picnic with us tomorrow. Not many girls left for a date for you, but you come back here tonight and we will go out and call on two or three of them and you can pick the one you want." I showed up on time and told friend Norris that unless the first girl we called on was pretty bad, I'd ask her if she would go to the picnic with me. Well, the first girl was most pleasant and attractive and seemed pleased to be included.

3rd Mate Bowers - 1st Mate Koopman
S.S.ELIZABETH -1922

This picnic needs a little explanation. It seems it was an annual affair with some 25 or more young people and a couple of mothers included. We didn't just meet someplace in a park, but rather piled into a good sized launch of the type used to bring the crew on leave from a Naval vessel. Everybody was on time, in a happy mood. They accepted me like I had always been one of the crowd. Here I was with a group of my peers who had quickly accepted me into their group, cruising up the bay on a very pleasant day, and I hadn't yet been in town for 24 hours. The place we were heading for was known as Buckoroe Beach. It was a beautiful place with a truly fine sandy beach. We had an abundance of food, lemonade and soft drinks. I got Norris aside and tried to contribute some cash toward the expense of the affair. He indignantly refused and said we were both hams and that I was his guest and that was the way it was. In due time, the outing came to an end. It was getting dark and time to load up and get back to Newport News. The weather was slightly overcast but good weather had been predicted for the evening. It had taken us something over an hour to get to the beach in the morning, so after having traveled for that long on the way back, we should have been in sight of some lights from Newport News. But we weren't. Pretty soon we saw lights coming up on our starboard side which turned out to be the place we had left considerably over an hour before. Oddly enough, no one seemed to panic and the fellow steering the boat admitted that he hadn't gotten the compass out of the locker. He had a little trouble finding it in the dark, but finally did, so everything seemed to be okay because most of the young men in the group were familiar with the waters in the area. About the time we had left the beach lights astern, it began to rain, not too hard at first. But then it got a little worse and the wind came up. It wasn't a real storm but enough so that waves began splashing water aboard. Fortunately there were several bailing cans and we all used them and bailed somewhat frantically without letting the group know how serious it was. Our leader and host

got us singing and laughing and we cruised on with the sky above pitch dark. Finally the lights of home began to become visible, the rain and wind let up, and we arrived back safely, but with everybody soaking wet and still in good spirits, and about three hours later than our expected time of return. Some of the parents ashore had become concerned and had notified the Coast Guard. They did look for us, but since we didn't have any lights on board and the sky was completely dark, with visibility close to zero, the Coast Guard didn't have much of a chance of locating us. Norris saw to it that my date got home safely in a car, and we all declared that it had been a great day—and it certainly was for me. When I checked in at the shipyard gate late that night the guard took a quick look at me and said, "You sure look like you've had a hell of a day." "No," I replied, "I had a great day. It was just the last three hours that were a bit difficult." That night I slept for the first time on the ship and had breakfast aboard the next morning and met the rest of the officers. Shortly afterward I went ashore to Norris's house and we had a pleasant time discussing the events of the day before. He got me another date for that night.

Whenever I left or returned to the ship I naturally passed various deckhands, "Boats", their boss, and sometimes the Mate. Naturally, I greeted them with something like, "How ya doin' today, sailor?" and in reply they would say something like "OKay, Sparks." There was one deckhand called "Slim." He was tall but a very powerfully built young man. It seems that he and a friend had climbed aboard an empty box car which was part of a freight on a siding somewhere in the mountains of West Virginia, and eventually got to Newport News and obtained a job aboard our ship as an ordinary seaman. He had never seen a ship before. He was a willing worker but obviously not too smart. When he heard me addressed as "Sparks" he didn't know that it was the

nickname given to all shipboard radio operators, or that it had originated from the fact that early wireless equipment did produce loud crashing electric sparks. I am not sure that he even knew what an electric spark was. In any case, he thought my name was "Sharks", since sharks were associated with the sea. So Slim always called me Mr. Sharks. None of us ever corrected him. He was willing to learn and well liked by his shipmates. I liked him too and tried to be kind to him and helpful whenever I could.

The rest of my stay before we put out to sea was most enjoyable indeed. Norris seemed to know everybody in our age group, was a natural party organizer, had a car and invited me to many pleasant social events until we sailed. He came aboard one day and looked over my spark wireless equipment. Then he and I went over to the next pier and visited the battle ship WEST VIRGINIA then under construction. She would be bombed at Pearl Harbor many years later.

The time had come when the good ship ELIZABETH was ready to start on her maiden voyage under her new name and that required that we sign on the remainder of the crew. As was customary at the time, Sparks assisted in the process which was really quite simple. The ship's articles, which were in effect the rules and regulations for the upcoming trip, were posted and presumably read by everybody before signing on. Each crew member would approach one of the officers handling the "signing on" procedure, who would ask him his name, date of birth, and finally the question, "Where do you want your clothes sent?"—a bit of grim sea humor, meaning what is your home address or that of some family member close to you, to be notified if you had a serious accident. Then the crewman signed his name on the proper line that showed his rating, and that was all there was to it. Ordinary seaman "Slim" approached me and said, "Gee, Mr. Sharks, I'm glad your gonna help me 'cause

I don't know what to do."

"That's OKay, Slim," I replied. "I just need to ask you a few simple questions and I'll put the answers down on the sheet for you. First, what's your last name, Slim?"

"Jones," he answered.

"What's your first name?"

"I dunno what that means."

"What did your momma call you?"

"Jamie, mostly", replied Slim, so I put down James. He wasn't sure how old he was, but thought he was 19 or 20, so I put down 20. Now it was time for the "Where do you want your clothes sent" question which I skipped. I said, "Slim, if you were going to write a letter to your momma, where would you send it, how would you address the envelope?"

"I wouldn't, 'cause ah cain't write."

So I put down address unknown. "Now, Slim", I said, "All you have to do is put an 'X' on this line."

Incredibly, he said, "What's ah 'X'?"

"I'll show you, Slim. First, you draw a slant line like this, and then draw another slant line across it like this and that makes an 'X'."

With considerable effort he made a good "X". "That's fine, Slim. You are now officially an ordinary seaman on this ship. Your pay is $30 a month and you don't have to pay for what you eat."

"Thanks for helpin' me, Mr. Sharks. I feel better now."

"OKay, Slim, and good luck."

I had heard that there really were a few illiterate people in certain remote areas of the United States, but, in all honesty, I didn't believe it until now. I was really shaken.

Next morning, the ELIZABETH eased slowly out of the shipyard, looking sharp with our completely new paint job in "Bull Line" colors, black hull, tan superstructure, black stack showing a large white "B" and proudly bearing our new name "ELIZABETH" on our bows. This was the maiden voyage of the new ELIZABETH, but there had been no ceremony or celebration of any kind, no breaking of champagne on our bow. We just quietly got underway and silently said "Good bye" to our gigantic friend, the LEVIATHAN, to the U.S.S. WEST VIRGINIA, and to all the rest of the sights, sounds and smells of the shipyard as we headed out to sea, bound for Portland, Maine. We had excellent bridge and engine room officers, but with the exception of a few experienced hands, a pretty ragged, mostly inexperienced deck crew which Chief Mate Koopman heroically and eventually successfuly made into a first rate group. The Steward, his cooks and messmen were all black. They were quite a collection of characters, most of them experienced. They got along well with everybody and did a fine job all around. They were all Americans, except one Bahamian who spoke English fairly well but with a strange British accent that made it a little hard for his fellow workers to understand him. But he was accepted and did his work well. Much later, through no fault of his own, in properly carrying out orders from his boss, the Steward, he became involved in an incident leading to near mutiny. Oddly enough, none of his shipmates ever ridiculed his speech. Later in the day, we were pretty well out to sea. The fresh sea breeze smelled good after a week of the none too pleasant odors of the shipyard, and we didn't miss the noise of riveters, air hammers, steam-operated big cranes, short whistle blasts, and metal banging against metal. Altogether it was pleasantly and relatively quiet now that we were out to sea. As soon as we were fairly well under way, I followed the established procedure of listening in on my wireless on the 600 meter band the first 15 minutes of every hour between 8:00a.m. and 9:00 p.m.

and found my receiver working very well. It was also customary for the Captain to give me the noon position of the ship to be transmitted to any land station, who, in turn, would forward it to the Bull Line offices in New York City. This was known as a position report, designated as a TR report. Rather late in the afternoon, the Captain did give me a TR to transmit. I was quite happy about this because it would enable me to actually use our quenched gap spark transmitter and find out just how well it functioned. I remembered my experience aboard the PULASKI in the Toledo Shipyard two years earlier when I tested my new spark transmitter for an unreasonably long time, causing serious disruption of wireless traffic over a considerable area, for which I was duly dressed down by the radio inspector the next day. I was very careful back in Newport News Shipyard not to repeat my blunder, so I listened in for some time on the 600 meter band and was reasonably sure that no traffic was in progress in my area. I "fired up" my transmitter, quickly threw the aerial switch to the transmission position, sent the letter "V" (dit, dit, dit, dah) just once, got a quick reading on the aerial high frequency ammeter and threw the switch back to the receiving position and turned off my transmitter. Apparently it was working alright. Now that we were out to sea and I was ordered to send a message, it was a real pleasure for me to note that everything seemed to be working properly.

I sent the message back to Norfolk which they would forward to our company offices in New York, who, I am sure, would like to know what progress we were making and our present approximate position. I continued to listen in on 600 meters the first fifteen minutes of each hour, which would enable the company to get a message to our Captain if necessary. Also I might get special general calls covering sudden changes in weather in our path, and last, but hopefully never, to pick up an S.O.S. from a vessel in distress.

Actually, I spent many more hours each day listening in, keeping track of the progress of other ships near us, observing the increasing signal strength of land stations ahead as we approached them, and likewise diminishing as we left them astern. Each night starting just before 10 o'clock, the powerful 100 KW station at Arlington, Virginia on 2500 meters would transmit time signals followed by weather reports covering a series of areas along the Atlantic coast. It was up to the wireless man to pick out the proper one for his particular ship. I had checked with Mate Koopman and he said he would not check time signals the first night out, but to bring the weather report to the bridge as soon as it was received. Following the weather reports, Arlington would send some more important news items of the day, which later I made up into a brief handwritten news bulletin, the baseball scores seeming to be most important to most of the crew. Our first night out, I listened to the Arlington time signals and then to the weather report, taking what applied to us up to Mr. Koopman, who had the 8 p.m. to midnight watch on the bridge.

The bridge, that holy of holies on every ship, where I would never go unless officially requested or to deliver a message, was to me especially impressive at night. It was in almost complete darkness except for the binnacle light that enabled the wheelsman to accurately view the compass and keep on course, with the officer in charge nearby, who checked at intervals to see to it that he was. "Good evening, Sparks", said the Mate as I stepped inside and handed him the weather report. "Good evening, sir", I replied and then waited until dismissed, in case he might not be able to read my writing or might request further information. I would follow the same procedure in delivering any message, in case the Captain or officer in charge might request further information. Soon the Mate said, "Thanks, Sparks. It looks like we will have good weather through tomorrow. Go ahead and turn in if you want to.

We'll see you in the morning." "Thanks, Chief", I replied, "and good night". I returned to my cabin. It was a beautiful night with a clear moon, bright stars and moderate sea. The wheelhouse bell struck five (10:30 p.m.). What a beautiful sound is a ship's bell on such an evening at sea.

There was a light breeze giving us a modest but pleasant roll, and once in a while a little pitch as we encountered a larger wave. Back at my cabin I listened to Arlington. They were well along with press reports but I had missed the ball scores, so I turned in. My bunk was at the opposite end of my cabin from my wireless equipment. It had been, to say the least, an interesting and somewhat tiring day, but for me a happy one because I was, once again, a wireless man on a ship. Lying face down with my ear pressing on my right side, I could hear the muffled rhythmic sound of our engines, deep in the hold, working to keep us under way, and the occasional weak thud as our bows encountered a wave of sufficient size. I weakly heard eight bells and with the soothing motion of our gentle roll, was soon fast asleep. When I awoke it was about 7:00 a.m. and I got up right away feeling very rested. I shaved with sea water, which is something less desirable than fresh water, but knew that I might as well get used to it. Getting dressed was quick and easy: khaki pants, a black shirt and black shoes with rubber soles and heels. This was acceptable dress for Sparks aboard cargo ships that carried only one wireless operator. Since Mate Koopman had said to me when I delivered the weather report last night, "See you tomorrow", and since he had the 8 to 12 watch on the bridge, I was quite sure that he would be finished with morning mess well before 8 a.m., so I went immediately down to the officer's salon hoping to meet him there. The door from my cabin faced aft and as I left, I couldn't help but notice a flock of my old friends, the sea gulls, following us just astern. I always liked their plaintive cry and liked to see them following us.

How they discovered us so quickly is just one of those mysteries of the sea. Upon arriving, I found that the Mate had just sat down. He greeted me pleasantly and introduced me to several officers I had met previously. The Captain did not come in while I was there. Each of us had a specific place assigned for us to sit no matter how many might be present. Mine was facing aft on the extreme port end of the table, with the Captain seated at the head of the table at the starboard end facing port. That put him about as far from me as could be and I was happy with the arrangement, fearing that if I was near to him I might have to talk to him and might not do so well. He was a very stern man but never unkind to me. Following my listening period from 8 to 8:15 a.m., I decided to look over the forward end of the ship which I had not yet done. It was a fine bright day with a continuing moderate sea. For the second time, I was enjoying my boyhood ambition of being a seagoing wireless man. I was happy indeed.

As I went forward, I encountered ordinary seaman Slim Jones doing some painting. "Good morning, Slim," I said. "How are you doing?"

"Okay, I guess, Mr. Sharks," he replied, "but my gawd, what a lot of water! Cain't see no trees, no hills, no nothin'. Is we lost?"

"No, Slim, we aren't lost. We know where we are, and where we're going, and everything is working just fine," I assured him.

"Where is we goin'," he said, "and how does we know where we's at?"

I replied: "We're heading north and should be in Portland, Maine in a day or so. You will get to see it when we get there. Way up on top of the ship, facing forward, is a big room called the 'bridge.' It isn't a bridge over a river or a bridge over a stream or anything that you've probably seen before. It's nothing like

that, but for some reason on a ship they call it the bridge. There is always a sailor there steering the ship and an officer like the chief mate to tell him how to steer the proper course. The chief can also signal the engine room to go faster, slower or stop. He knows how to figure our location quite accurately every day by the angle of the sun, certain stars and so on. If we get into fog and can't see the sun or stars then I can help them by using my wireless to get our location. Don't worry about it, Slim. They have been sailing ships for many years and know how to do it."

"Thanks, Mr. Sharks", replied Slim. "I feel better now."

I am not sure that he understood me too well, but at least I was able to lessen his apprehension. I really felt sorry for him. I went up forward to say hello to the Bosun in the paint locker up in the bow. "How are things going for you, Sparks?" he asked.

"OKay", I replied, "And you?"

"Not bad," he said, "considering that most of my deck hands are greenhorns, but they seem to be trying and are shaping up pretty good".

"Boats", I said, "I don't in any way want to seem to be telling you how to run your job because, obviously, you are a real fine seaman and know your business. But I wonder if you know that one of your newest seamen, Slim, the one you can see painting from here, is absolutely and completely illiterate? I signed him on and he can't read or write a word. I had to show him how to make an X above the line where he was supposed to sign his name.

"He told me he hoped he would do a good job at whatever he was supposed to do, and I think he will if he understands you. Maybe you can be a little patient with him and be careful in explaining what you want him to do. He is out of the West Virginia mountains and never saw a ship before, so he can't understand ordinary terms that an experienced seaman would."

"Thanks, Sparks, glad you told me. He did seem a bit dumb, but I'll make sure he understands what he is supposed to do."

"Thank you, Boats, and good luck", I responded, and that was that.

As we approached Portland, we began to have less sunshine and encounter patches of fog. In due course we dropped anchor off Portland and the Pilot came out aboard a small sailing vessel and laboriously climbed up our "jacob's ladder" and onto our ship. He gave a copy of the latest Portland newspaper to the Captain and then proceeded to take charge of bringing us safely into the harbor. Incidentally, a jacob's ladder is carried on all vessels, and is put over the side of the ship reaching the water and is used in coming aboard or leaving the ship when not made fast to a pier. It consists of some fairly narrow boards for steps that are kept horizontal with two separate lines near each end, with knots under the boards to keep them fairly level. It is better and easier to climb or descend than a regular ladder that might be let over the side, but still it in no way compares with the relative ease of getting up or down a very steep regular stairway.

To me, getting our ship into and out of ports with the pilot was always most interesting. I often wondered how many hundreds of ships a given pilot had brought in and out during his career. It is a most unusual occupation involving a great deal of skill and responsibility. A pilot gets to sail a lot of ships and meet a lot of captains. I was always facinated by the sights and sounds we encountered in entering or leaving a harbor, whether we had been there before or not. The bell buoys we could hear in the fog before we slowly eased by them; the vessels, large and small coming and going, especially small craft in the harbors that always somehow knew how to get about, regardless of the visibility or lack of it; the fishing schooners on their way

in or out. Early one morning in a dead calm, I saw four crewmen from a fishing schooner in a dory, one man on an oar, actually towing their schooner out to where they could pick up some wind for their sails. It was an impressive sight, illustrating the extreme teamwork and heroic efforts of a fishing schooner crew in making their hard and precarious living as fishermen along the New England Coast.

Even in heavy fog, as we entered a harbor and could see nothing, we would become aware of smells —land smells, for lack of a better word, or perhaps harbor smells would be better because even though we could see nothing, we knew we were in the harbor. Then there was the rumbling, rancorous intermittent blasts of the fog horn, warning ships of possible danger and perhaps, in some cases, assuring them that they were near where they were trying to be. In sunshine, everything in a harbor is always clear and interesting: other ships; warehouses and their offices, government offices, eating places; bars and stores catering to sailors' needs along the waterfront; interesting buildings and houses upward from the harbor with a church and steeple here and there and, best of all, the lighthouse, so valuable as a navigation aid both day and night except when the fog closes in. Then if we are out to sea, we use our wireless bearing stations.

We didn't take on any cargo at Portland, but we stayed there several days to work on our engines and improve their speed, which the Mate told me was very poor from the shipyard up. In any case, I soon found a "ham" friend. I found out that his last name was Clancy. He was from a big family and like my ham friend in Newport News, Clancy seemed to know a lot of very nice people of my age. Again I got in on a lot of parties and social life with him. Once, he got me a date and we went out to Old Orchard Beach which, at least at

that time, was the outstanding area Amusement Park. We tried every ride in the place and took in everything for a great time. We made quite a few trips into Portland, mostly from Sydney, Cape Breton Island, which was to be our next port of call. While we were still in Portland, Mate Koopman invited me up to the bridge. He laid out a series of charts of the coastal waters in which we would be sailing on our way north to Sydney, and showed me how relatively narrow the space was where we would be traveling. He said, "I know it looks like an awful lot of water once we are under way, and there is, but we have to follow a course which isn't too wide and is bordered by reefs and shallow water. Also there are quite a lot of ships, both coastal and from Europe, coming from the opposite direction.

"We are going to be in fog a lot of the time, and when we are, do your best to get your wireless compass bearings accurately. Also be listening for other ship's bearings coming toward us, and if they seem to be closing in, report to the bridge right away. The compass stations try and do this too, but sometimes they are pretty busy and don't have time to notice."

"OKay, Chief, thanks", I said, "but I don't get the bearings, the land compass stations do."

"I know that, Sparks, but I am just reminding you to copy the figures with care."

"That I will, and thanks for showing me the charts and explaining the details to me."

He was right. After leaving Portland, we didn't see the sun or stars very often, and I was kept busy doing my part, getting radio compass bearings, sometimes for long stretches of time. I did, of course, know the locations and call letters of radio compass stations up and down the coast. When I received a request for a bearing from the Captain, I would call the

station I judged to be most suitable considering our estimated position, and use the international signal, QTE, which meant please give us our bearing. The compass station would give me the go ahead signal and I would call him back and follow the established procedure, which was to call him three times, sign our call letters three times, and then proceed to send a series of what we called "Moo signals"--two dashes (dah dah); the letter "M" followed by three dashes (dah dah dah); the letter "O", keeping this up for some time, inserting our ship's call K O R C; and finally signaling the end of my transmission and requesting him to give us our position. The compass station would respond following a standard procedure and transmit, "Your position from Bar Harbor from true north is 67.6, or whatever it was. American compass stations gave it in tenths of a degree - Canadian stations in twelfths. I would deliver this information to the bridge immediately and the navigator would lay the line out on his chart. Presumably, we were somewhere on the line, just how far out we didn't know. It was customary to get bearings every 15 minutes, and knowing our direction and speed, it was possible to estimate our position with a fair degree of accuracy. Sometimes, when the compass station responded, it would give me bearings from two different coastal stations, which was much more helpful, and on rare occasions from three stations. The three bearings almost never exactly intersected, in which case there would be a small triangle we called the 'cocked hat' and theoretically, we were there in the center of the hat, the judgment being made by the navigator. I asked the Mate how accurate the whole system was, and he said within five miles for sure. He further said, "That may not seem close to you, but it's a hell of a lot closer than nothing, which is what we had without it."

All the radio compass transmission was handled on 800 meters, far enough

away from the 450 and 600 meter bands to try to avoid interfering with traffic on those wavelengths. It would be many years before it would be possible for an officer on the bridge to simply "turn a loop" and get an accurate bearing on various land stations from the ship, and far more accurately with sharp waves from vacuum powered continuous wave transmitters than with the very broad wave spark equipment we were using. It would not require a special operator to handle it. In heavy, foggy weather, I would sometimes get bearings every 15 minutes for long periods of time. Once I worked for 36 hours, getting snatches of sleep on my arm for short periods. The Mate himself brought me coffee and sandwiches, mostly coffee, at intervals to keep me going. Sometimes atmospheric conditions worked against us, making it difficult for the compass station operator to turn his big loop aerial until we came in weakest or strongest to determine our signal direction. One night a compass station reported to me, "No minimum-no bearing", meaning that no matter how he rotated his aerial, our signal did not change in strength. It was a bit weird because we could both read each other's code signals, but he couldn't give us our bearing. Sometimes when there were a lot of ships wanting bearings, we had to wait our turn to get ours, which disturbed the Captain. But he understood that it was not my fault.

The government radio station, NAA, located at Arlington, Virginia, sending on a wavelength of 2,500 meters and with a 100 kilowatts of power, was the most powerful transmitter in the world. Nevertheless, there were nights when atmospheric stactic was so strong that it was impossible for me to copy the NAA press reports. Two years previously, while anchored at Seven Islands City, Quebec, on the northern shore of the St. Lawrence River, I did successfully copy NAA--something over a thousand miles away. Considering that this was with a simple crystal detector, it was something of a record. Atmospheric static made it impossible the rest of the week that we were there. In any

case, I was generally able to get out my very brief news sheet, including the baseball scores from the previous night. One morning, I didn't have the news and a couple of the crew asked me why. I told them that there was way too much heavy static, that "I just couldn't copy the signals through the noise."

"What causes static, Sparks?" one of the sailors asked.

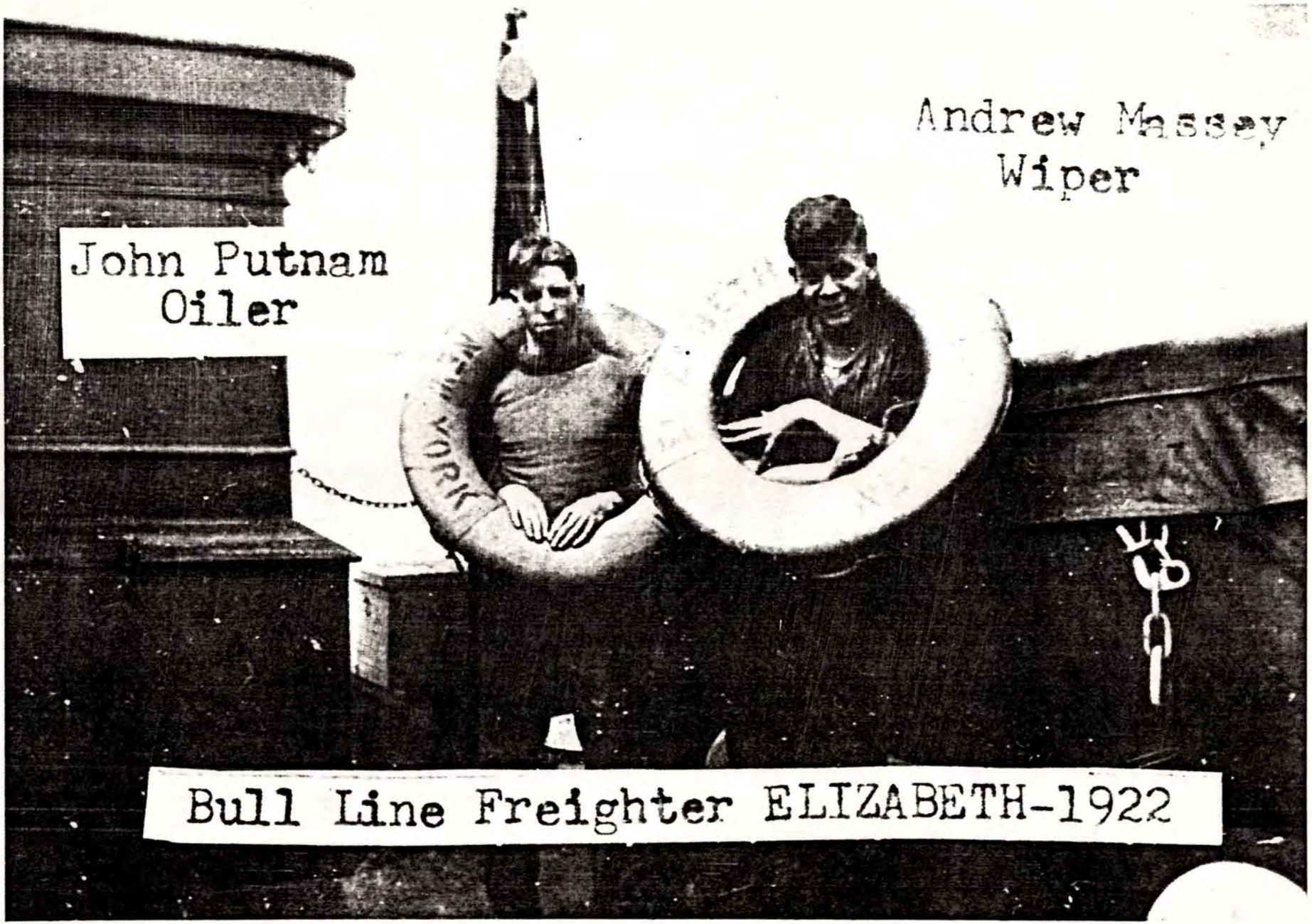
"I really don't know. Why don't you ask Spadie?" I said, "he knows about a lot of things."

Now Spadie was a rather intelligent black messman who said he was studying law in some Southern Negro College. He was well liked, did his work well, was never at a loss for words, and was really witty.

"That's very simple ," replied Spadie, "Static is caused by "Splizerinkturns" in tha atmosphere," at the same time snapping all of his fingers across the thumb of his raised right hand a couple of times, for emphasis. We all laughed, but I have never heard a better explanation, and told him so. Other than transmission of our daily position, I occasionaly sent messages to the Bull Line offices in New York from the Captain and received replies to them. They always seemed to be in straight language, but I often felt that they might be in some kind of cypher or code. But my job was to send and receive them exactly as given or received, which I did on a strictly confidential basis, which was my obligation. As for the engine room crew, that fine group that spent most of their time deep in the bowels of the ship nursing the ponderous engines that kept us underway, I had met the Chief Engineer, as well as his first, second, and third assistants, in the dining salon and was on friendly speaking terms with all of them. But I seldom had contact with them in the course of my daily activities. Mate Koopman told me that the Chief was a highly experienced man, but that he didn't know much about his assistants. As for the rest of the engine room crew, I only got to know two of them quite well.

One was an Oiler by the name of Putnam who we all called "Put." I considered him a rather remarkable man. He told me that he was an orphan. He had no known relatives, had somehow gotten through high school in Norfolk, Virginia and had soon after gotten a job as wiper on a freighter and had been at sea ever since. A wiper was the lowest job in the engineroom of a ship and corresponded roughly to that of being a coal passer on a ship that used coal instead of oil. If a wiper did his work well and took advice given him, he could in time be promoted to the next step up, which was "oiler". From that point on, the oiler, after considerable experience and study, could acquire enough knowledge about the engines and engineroom procedure to take a government examination which, if he passed, would give him a rating as Third Assistant Engineer. In a number of years he would qualify as Second Assistant Engineer. Eventually, with a great deal of determination, study and persistance, he could become First Assistant, and finally Chief Engineer. You can be sure that when an engineroom man reached Chief Engineer, he was indeed well qualified for the responsibility, which was considerable. My friend,"Put", had been an oiler for quite some time, and was about ready to take his first examination to qualify as Third Assistant Engineer. Each step upward meant an increase in pay, and while I never heard from him after leaving the ELIZABETH, I am confident that he made progress toward his goals.

The other engine room man I became acquainted with was a wiper named Andrew Massey. It was his first job aboard a ship and he didn't like it. He approached me politely and said he wanted to become a radio man, and could I possibly help him by teaching him some of the basics so he could get started? I agreed and said we would have to work out our meetings somehow in short snatches of time when he was off watch and my schedule would permit it.


John Putnam
Oiler
Andrew Massey
Wiper
NEW YORK
Bull Line Freighter ELIZABETH-1922

Fortunately, we had what might be referred to as a portable library of good books aboard. They were donated by some most kind society. At intervals of a month or so, someone would come aboard with a new case of books and pick up the ones we had. How they kept tabs on the whole thing, I never understood, but they did a fine job serving Great Lakes vessels as well as ocean-going ships. Remember this was in the early 1920's and these were all good books by Jack London, Hawthorne, Edgar Allen Poe, Curwood, etc. The sailors really enjoyed them. Having plenty of time, even when I was on watch, I read them all. This was before the days of smut, profanity and violence in paperbacks, as we get today. Anyway, the library, although small, was in my cabin under my supervision. I merely made a note of the sailor's name and rating in a note book and told him to bring a book back as soon as he was finished with it. We never lost a book. However, it was a strict rule that no unauthorized person could come into the radio room, except a sailor picking up or returning a book, and this was to be done quickly. So I would have Massey, the oiler, come to my cabin where I would have him quickly pick up a book. Then I would give him a piece of paper folded over so it would fit between the pages of the book, and a pencil, and begin my instructions, giving him simple definitions, symbols and later simple diagrams that he would copy on his sheet. I kept one earphone of my head set on so I could pick up anything that might be of importance to our ship, and I proceeded with my attempt at instructions. I said, "Massey, if we see an officer pass my port or come in here, you start for the door and I will say, 'I am sure you will like that book, I did. I read it myself'," which in most cases was the truth. We had to start at the very beginning with elementary terms like "volt", which is a measure of electrical pressure in a circuit like pressure on the water in a hose. The symbol for "volt" is the letter "V". However, engineers often refer to it as EMF, or Electro Motive Force, or sometimes

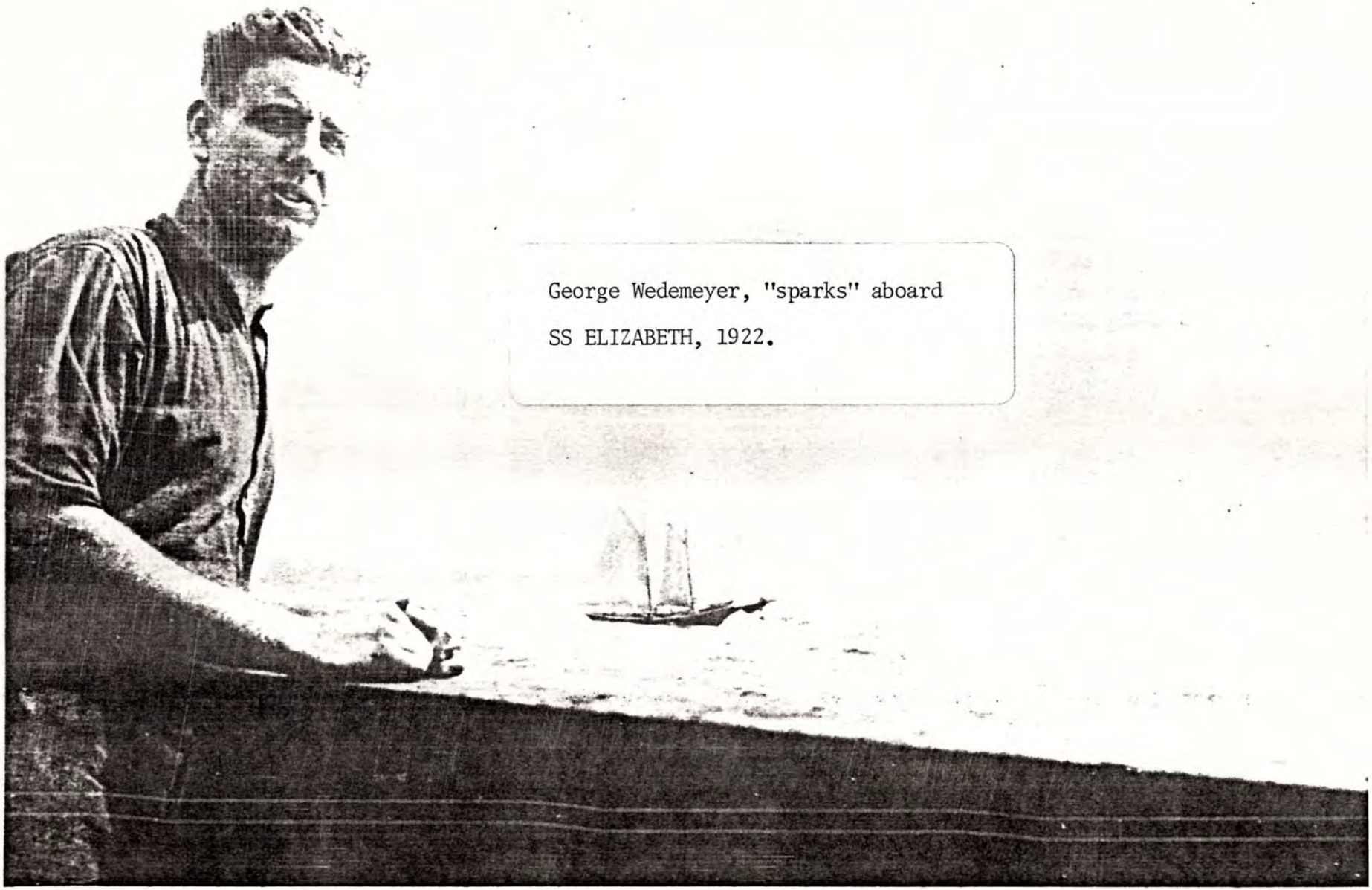
just by the letter "E". We had to take the terms slowly. I described "resistance" to be the flow of current, like friction inside a water hose. Its unit of measurement was "ohms" using the letter "R". The current itself was measured in "amperes" with the symbol "I". I took time to tell him that these factors were named after real scientists, who developed them and there really had been a man named Ohm, another named Volta and still another named Ampere. There was a definite relationship between these factors, which is relatively simple and known as "Ohms Law", making it possible to calculate the values of the various items in either an existing or proposed circuit. I gave him simple problems and he brought the answers back to me next visit. He was an excellent student and satisfying to work with.

We covered briefly the basic zinc carbon cell that always put out exactly 1.5 volts, its center carbon post always being the positive connection and its zinc can, the negative, and that when several were connected in series, the voltages added up and that, properly speaking, a battery was a series of cells. Naturally he knew what a magnet was and I explained that if he would take a large nail or spike and wind a lot of turns of insulated wire around it and connect the two ends of the coil to a battery, the nail would instantly become an electro-magnet. When the battery lead was disconnected, the nail would lose its magnetism, and this was the basis of the telegraph. We went a step farther and I explained that if we had a pretty good sized coil of wire wound around a hollow paper tube, and had each end of the coil connected to a sensitive electric meter and then took a bar magnet about the same length as the paper tube and suddenly plunged it into the tube, that momentarily the meter would register a current. This, I explained, was known as electro-magnetic induction and was a most important and useful electrical occurence, as we would learn in further studies. It

was very slow going, but I wanted him to really grasp the basics so he could really develop into a good radio man. Sometimes we would get in a good bit of time together, and sometimes there might be days when we couldn't. But we did keep it up and we made the most of our times together. Many years later, I would become an instructor in the Federated Radio Trades School in Detroit, Michigan during which time I never had a student that approached young Massey's efforts to learn. At the time, I was barely 20 years old and Massey was 18.

In due course, running in and out of fog, and using Canadian radio compass stations, we came in to Sydney, Cape Breton Island Harbour. Fortunately the fog had cleared and we even got patches of sunshine. As always, entering a new harbor with its different sights, sounds and smells was a pleasure for me. There was a general atmosphere of fog and coolness, a sort of drabness about the place. Yet for some reason I liked it. Perhaps it was the people; they were a bit reserved but still always friendly. Perhaps it was simply because we were sailors. I accompanied the Mate on a visit to the Customs Office to deliver some papers. I stayed outside in a sort of general office while the Mate went into a private one. The man in charge asked me how things were in the States and quickly stated that he knew I was an American by my accent. This jolted me a bit. Naturally, I assumed that our pronunciation was correct, and that theirs was a British accent!

The two main occupations in the Sydney area were fishing and coal mining, so the city did not create the impression of general prosperity. Beyond the shipping piers and fairly close to the shore were a long row of small houses, all of which looked like they could use a coat of paint while appearing to be in a fair state of repair. I learned later that these were



George Wedemeyer, "sparks" aboard

SS ELIZABETH, 1922.

the homes of fishermen, some of whom worked in the coal mines when fishing was not too good. They were good, honest, hard working people. Along the piers were the usual assortment of cheap restaurants, pool rooms and bars which had to depend upon the crews of visiting ships for most of their patronage. I well remember a character who was a pool shark who frequented one of the pool rooms. He was perhaps 35 years old, rather slim and fast moving. He wore a very British pinch-back jacket and carried a cane. He would strut around the pool room as soon as any new men came in, very briskly thumping his cane on the floor for emphasis and loudly and arrogantly saying, "I will play any man in the house for any amount, two for one." Sooner or later he would get an opponent. He would only play "snooker", which is probably the most difficult pool game there is, played on a large table with small pockets. He played very fast and I never saw him lose. It seemed that sooner or later some sailor would come along and "take" him, but according to the proprietor, he had never seen him lose, unless it was intentional to build up his intended victim for a larger bet. So much for local color and a picture of a truly successful man in his field.

There was a trolley car that made reasonably frequent trips from the dock area, going several miles up into the main part of town which had a fairly good sized business district, with a bank on the main corner and the town's only department store across the street. There was also a bowling alley and movie house, referred to in Sydney simply as the cinema. I forgot to mention that there were the usual customs and shipping offices along the water front.

Beyond the business district I walked along a residential street facing the harbor, built on a slight rise with no houses across the street because the land fell away to the shore, giving these houses on the rise a beautiful

and unobstructed view of the harbor. The houses along this area were better than average in general size and appearances, so I assumed they belonged to the town's leading citizens. One of them seemed a bit larger than the rest, but was by no means a mansion. The thing that caught my ever alert eye was a beautiful six-wire aerial above the house, indicating to me that it must be a "ham" installation. I went up on the front porch and rang the bell. Finally the front door opened and I was startled to see a very fine well dressed English type of a gentleman smiling at me in unspoken greeting. He had a neatly trimmed white goatee and looked exactly like the picture of the gentleman pictured in the Lipton Tea advertising of the day, presumably representing the famous yachtsman, Sir Thomas Lipton. He smiled at me again and said, "Good afternoon, young man. What can I do for you?"

Trying to regain my senses, I said, "I am sorry to bother you, sir, but I am the wireless man from the American ship ELIZABETH and wondered if I might see the young man who has the wireless station. I couldn't help but notice the very fine aerial above the roof."

"I am the young man you are looking for. Please come in."

This was a new experience for me, to say the least. The old gentleman hastened to explain that he only had one of those new wireless sets that could pick up music, and had recently obtained it at the insistence of his grandson from the States who was paying him an extended visit. He wished I could meet him, but no one was at home at the moment except the old gentleman himself. He said he was unable to receive anything on the set and would I please look at it and see if I might be able to fix it? I explained that with no tools or test meters of any kind it would be difficult, but that I would take a look at it anyway. Radios were quite new with only occasional programs, and, he explained, there was no radio repair man in town. This

was in the very early days of radio and sets were wired up with copper-tinned busbar with no insulation around them. The wire was stiff enough so that it could be bent in various ways to keep from touching other wires. I looked into the top of the radio, down through a maze of crisscrossing wires and managed to spot two of them that were touching. I asked the old gentleman for a pencil, threaded it down through the wires and managed to get the touching wires separated. Immediately the set began to work and one of the few stations within his range happened to be on the air and came in very well. "That is simply remarkable", said the old gentleman. "And to think, I sent it to Montreal and back twice and they still didn't repair it."

He asked me if I could spare a few minutes with him. I assured him I could. He asked the name of my ship, the name of her owners, her approximate tonnage, etc. By this time he had told me that his name was Burchell. He asked more questions about our ship. Where did we come from? Where were we bound? Finally I said, "Mr. Burchell, you seem to have a considerable interest in ships and shipping. May I assume that you spent some time at sea, yourself?"

"Indeed I did", he replied. "Went to sea before the mast on a windjammer when I was barely 16 years old. It was a hard life for a while but I slowly worked my way up to an AB and bosun. Finally managed to get Third Mate's papers, and slowly Second and First Mates. Finally became a Captain with a ship of my own. Eventually became involved with another Captain, who was a friend of mine and he offered me a partnership deal which I went into with all my savings which had taken many years to acquire. Our venture was successful, followed by many others. Yes, I was fortunate indeed. My whole life has been involved with the sea. I am retired here now in this comfortable home, but keep busy in a small way with several local enterprises. I do want you to come back on your next visit here. I want you to meet my

grandson and my wife, too. And be sure to bring along any of your shipmates when you come. Not just officers, but deckhands or engine room men. I still love the sea and love to meet and talk with seamen of all kinds whenever I can."

About that time, a young man came into the room, wearing a uniform that would have done justice to a high ranking British naval officer, saluted and said to Mr. Burchell, "Your car is waiting to take you to your meeting."

"Thank you, Bedford," replied Mr. Burchell. "I shall be out in a moment. Just wait for me, please."

He then shook hands with me most cordially and said, "Do come back and see me on your next trip. I do so want you to meet my wife and my grandson from the States."

He seemed to know that our ship would soon be back, which I did not know. It turned out that he had a lot more than a small interest in a lot of things in Sydney, including shipping. I later learned that he was involved with the biggest local bank, the only department store, docking and warehouse facilities, and shipping generally. He really was "Mr. Sydney" himself, well thought of, respected in his community and loved by sailors. So my pleasant relationship was not really a "ham" to "ham" matter, but rather an unwritten fraternity between sailors, regardless of age, position or rating. I told the Mate and my friends, "Put", the oiler, and Massey, the wiper, about my meeting. The Mate believed me, but my other friends were doubtful and a bit perplexed because they both said, "Sparks, we know you don't drink, but you sure can tell one hell of a story."

We took on a load of coal and put out to sea. To me, there was always

something a little sad about leaving a port where we had spent some time. We quietly slipped out of the harbor, past familiar piers, ships and schooners at anchor. I hoped we would soon return so that I might again visit with Mr. Burchell. Our deck crew was busy getting us properly underway. The day was dull, but with an occasional patch of sunshine and the ever present threat of fog. The sea was moderate with good weather forecast ahead. After a few hours, well out of sight of land, we encountered patchy fog and sailed into a reasonably clear area, but with a wall of fog completely around us, some distance away. The wind stopped completely and suddenly we were in a sea as smooth as glass, not a ripple or crest of any kind but with tremendous swells. We would slowly climb up a long swell, then suddenly slide down the far side with sickening speed. The water seemed to be the color of mud. It was all really weird. Within half an hour we sailed out of it into a moderate and most welcome sea with a brisk breeze, and the fog was gone. I never saw anything like it before or since. The Mate said he had only experienced it once before in his many years at sea and had never heard of a name for it from anyone. Things soon got back to normal and the Captain did not request any bearings. Visibility along in mid-afternoon seemed quite clear, but hazy in the distance. Several miles off our starboard we sighted two ships quite clearly, but gradually they both seemed to stretch upward in somewhat the way one's image is distorted in certain mirrors in a fun house at a carnival. The Mate said it was a mirage, and indeed it was; but I wanted to see a mirage like I had read about, where a ship appears in the sky usually in good proportion, but upside down. But I didn't. That night the ships were still within our range of visibility, but all their lights stretched upward, giving a very strange image indeed. All this time, radio transmission and reception remained normal. Next morning visibility was clear and the ships were gone. Maybe they never were there and the whole thing was a mirage. Strange things are

sometimes seen at sea that are never entered in the log.

My friend Massey, the wiper, began to contact me again quite regularly even though we did spend a little time together as teacher and student while in Sydney. Gradually, I taught him the parts in a circuit and showed him various symbols used in wireless circuit diagrams, such as resistors, condensers, coils, fixed and variable, transformers, iron core and radio frequency, a battery of cells, aerial and ground which on a ship was the metal hull making contact with the sea, etc. Then I had him pick out various symbols from circuit diagrams I showed him in books. He really worked hard at everything that I taught him and finally asked me if, with his limited knowledge, it would be possible for me to explain to him basically how our wireless transmitters and receivers worked, which I did. Things kept interrupting our sessions, but he was persistent, apologetic, and grateful. By the time he left our ship he was, in my judgment, well on his way to becoming a real radio man. He asked me if I thought there was any future in radio beyond being a shipboard operator. I told him that the use of three element vacuum tubes both in transmitting and receiving was just about upon us, and that with the transmission of broadcasting news, music and entertainment, I was confident of a steady, growing future all around: in the engineering construction and maintenance of broadcasting stations; and in the design, production, distribution and service of radios for which there would be ever increasing public demand. I really believed that. There were already a few radio broadcasting stations on the air with more or less regularly scheduled programs. But the whole industry developed much faster and to a greater extent than I had dreamed of.

But let us get back to the kind of wireless equipment we were using on

ships in 1922, which was simply an improvement over the original apparatus used by Marconi. The basic spark transmitter was a powerful spark discharging between two metal rods, with one rod connected to the aerial and the other to the ground. This caused electromagnetic waves to be radiated outward, which could be received at a distance with suitable equipment. The original spark gaps on the first wireless transmitters were simply two metal rods, each mounted on a good insulator and spaced close enough so that the high voltage could jump across the gap causing a spark that could be heard and seen. The tone from this wireless transmitter as heard in the headphones of the receiving station operator was simply a series of buzzes. It was soon discovered that after the spark gap was in operation for any length of time, the spark terminals would heat up and the spark tone would become "ragged". Larger terminals with flanges to air cool the terminals helped some. But soon the rotary spark gap was developed. It was simply a rotating disk mounted between the two gap rods. The disk or rotor had a series of terminals properly mounted and spaced around the rotor's circumference. The rotor was mounted so that as it turned, the terminals would come close enough to the stationary terminals for the spark to travel from one stationary gap to one on the rotor, and then on to one of the other rotor terminals to the stationary gap post on the other side. This arrangement kept the terminals cool and at the same time gave a pleasant tone, or "note", to the received signals, depending on the speed of the rotor and the number of terminals and their spacing on the rotor. In this way each transmitter had a distinct note of its own. Another kind of spark gap also came into general use, especially on ships. It was called a quenched gap and consisted of a relatively large number of small gaps in series, each one with an air cooling vane and an insulating washer between each gap. This gap was somewhat adjustable and gave off a beautiful whistling note, very pleasant to listen to. It is also interesting to note that, in this era, wireless signals were broad in

nature.

Today, over a half century later, it is possible on an ordinary radio to tune in stations a millimeter apart. At that time, the wireless signals were so broad that getting three of them within the present broadcast band with any chance of tuning any one in without getting interference from the others would be nearly impossible. The range or distance a given transmitter would travel in daylight was quite consistent. It was well known, but not too well understood, that at night the same station would cover one and a half to three times the distance. Moreover, at night variable conditions were often encountered, causing signals to fade in and out, sometimes slowly and sometimes quite rapidly. Also, we might not be able to hear or communicate with a station well within our daylight range, but at night, we could often hear and occasionaly communicate with stations well beyond our daylight range. This effect would sometimes cause heavy interference with a station we were "working" close by at night. Today, the causes of these phenomena are understood, and with modern, powerful sharp tuning transmitters and receivers that can amplify incoming signals, together with built-in automatic volume and frequency controls, it is possible for the receiving operator to be unaware of fading or frequency drifting that may be in effect. One factor that caused trouble long ago—and still does—is static caused by lightning or even electrical discharges between clouds. The result is a more or less continuous low frequency crashing sound in the receiver's headset, drowning the incoming signal either continuously or intermittently. Static occurs in the temperate zones in summer when thunder storms are frequent; but rarely in the winter. However, in the tropics, static prevails pretty much continuously. In the spark wireless days, when operating in the tropics, transmitters had to use much greater power for a given distance because of the static level the receiving operators had to contend with. It took a lot of concentration and

steady nerves to continuously copy through static unless the receiving operator was close enough to the transmitter to be receiving a strong signal, which didn't happen much of the time.

But aboard the ELIZABETH, we were far from the tropics. As a matter of fact, I had that morning received a general broadcast from a Canadian Fisheries Vessel (roughly comparable to our Coast Guard) that was a general call warning us of an iceberg that had somehow drifted pretty well south and into the shipping lanes. We were, however, well out of range and heading South from the position given in the warning. In daylight I could hear coastal radio and compass stations faintly at first, with the volume or loudness of the signal from a given station increasing slowly hour by hour as we approached, and with the loudest signals when we were abeam of the coastal station. Normally we were from 50 to 150 miles out depending upon the coastline, but still receiving a readable signal. Likewise, the intensity of the signals from the Coastal Stations slowly diminished as we sailed away from them. So there were always signals from some stations ahead and some behind as we made our way slowly southward (about 10 knots in clear weather and five knots in fog).

The signals from these stations were to the shipboard wireless man not just a lot of intermittent sounds, but rather the voices of friends. Each station had a different note or tone and I soon reached the point where I could identify just about every coastal transmitting station from Cape Breton Island to Norfolk by their notes, even before they signed their calls. I also learned to identify many operators by their "fists", that is, their own personal style of transmitting the dots and dashes of the code. Like

a group of excellent penmen, all would produce perfect scripts, but each with his own style and flourishes. These coastal station operators, both Navy and civilian, were the best of the best. Some of them had a rhythm to their sending that made it easy to read. This we referred to as a "swing"—a "Lake Erie swing" or whatever. In any case, at its best, it was like receiving something close to poetry and music. These coastal operators were so good that when a ship called them, they were incredibly accurate in judging the maximum speed that the ship operator could copy when they responded to his call. I got to the point where I could imitate another operator's fist. But, of course, I had my own style which I tried very hard to make especially easy for the operator to whom I was sending to copy. I wanted to be the best possible code man, and to that end I spent hours every day copying messages not directed to us, and practicing sending with a separate key and buzzer not in any way connected to my transmitter. While our only contact with the coastal operators was through their "fists," they somehow managed to convey to us a feeling of warmth and willingness to be helpful. Especially appreciated were the compass stations, with their patient efforts to give us the most accurate possible bearings with equipment that not too many years later would be considered extremely crude.

The second night out from Sydney I put on my headset for the 9p.m. watch period, listened for a minute or so and soon discovered that "atmospheric conditions" were causing reception that was absolutely incredible. What was coming in tonight was greater than anything I had ever before experienced, either as a "ham" or shipboard operator. Some stations skipping in from great distances were holding steady, some were fading slow and some fast. I heard a ship call NAX Colon Panama. I didn't hear Colon respond but heard the ship give her position as about 150 miles north of Colon,

which was something over 2,000 miles from our position. I also heard static which must have skipped the same distance. Then NRQ Detroit, no less than 1,000 miles away, came booming in, calling a Great Lakes ore carrier. I didn't hear the Laker respond and NBQ slowly faded out. I recall NSD Cape May, New Jersey coming in consistently louder than my nearest coastal station, and their strong volume held steady as long as I was on watch. All of the coastal stations in my normal nighttime range were consistently coming in stronger than usual.

Suppose that somehow a stranger who had never heard a wireless signal and knew nothing about such reception walked into my cabin, and I had handed him my headphones and told him to listen in. What he would have heard would be a jumble of intermittent noises, somewhat musical, but consisting of a conglomeration of buzzes, comparable in tone to the low notes on a bass violin, chirping and singing like some birds, and whistling notes something like the high notes on a trumpet or flute. He might be reminded of a lot of birds and insects creating a commotion near a pond with the occasional croak from a frog. To him, it would have, quite reasonably, sounded like a hopeless mess of sounds in varying intensity and tones completely meaningless. How I could possibly get a message out this batch of audio turmoil was beyond him. But what did it sound like and mean to me? Quite honestly, it was a wonderful and pleasant experience in sound. Because of the phenomenal reception we were getting, I had the feeling that the world of reception outward from our ship was beyond reality and that there was nothing out there but friends. No strife, no trouble, just a peaceful world full of friends and their "voices." I had the vague impression of pleasant colors, white and light shades of green, blue and yellow, somehow blending and slowly shifting, always in pleasant sunlight.

I was under the impression that I had been experiencing all this for just a few minutes. Looking up at my clock, I was astonished to note that almost an hour had passed since I came on watch. It was now almost 10 p.m. Time for me to tune in NAA at Arlington, Virginia, for time signals, weather and news. NAA came in so loud this night that I had to lower the volume. Along about 10:30 p.m. I took my copies of the weather and news and gave them to Chief Mate Koopman on the bridge. I waited briefly, and soon he said, "Thanks, and you better turn in and get some sleep, because we may be calling you early for radio bearings." I started back to my shack. It was a beautiful, fairly warm night, relatively clear with a light breeze and a moderate sea which gave us a pleasant gentle roll, causing our aftermast to slowly pass back and forth across the moon —the only moon we ever saw in all the foggy months we cruised up and down the Nova Scotia and New England Coast. It was a happy moment for me. I had experienced one of those spells of almost mystic reception. Here I was a real wireless man on a ship, fulfilling my youthful dream. I thought I would like to go on being a wireless man for the rest of my life, but eventually realized that as a practical matter this would be out of the question.

As I approached my cabin, the bridge struck five bells and I turned in for the best night's sleep ever. When I awoke the next morning, fog was patchy, but we would not need radio bearings for several hours. I had a pleasant breakfast, and it might be of some interest to readers half a century later to know how well we ate aboard an American ocean freighter. We did have electric refrigeration, so we could preserve food about as well as we do today, but we did not have deep freeze, so such things as fresh milk, vegetables, etc. were out of the question. We used condensed milk, which had a definitely unpleasant taste. The galley crew baked bread and pies

for us, so we were well off in that respect. Altogether, we had all we wanted to eat and were very well satisfied with the food we were getting, knowing that it was better than on most foreign freighters.

My student friend, Andy Massey, the wiper, came by before we needed radio bearings and we had a good session about aerials. In 1922, it was generally accepted that a wireless transmitting station radiated electromagnetic waves out through space from the aerial, and also outward through the ground. Aboard ship the ground was simply a good connection to the steel hull of the ship which was floating in sea water and was a very good ground indeed. By this time, it was generally understood and accepted that, other things being equal, with a given amount of transmitted power, the longer and higher the transmitting aerial was, the greater the sending range of the station would be. There were, however, certain limitations, but in general this principle was true. The same general rules applied to receiving aerials. It was also well known that if the receiving aerial was exactly the same size as the transmitting aerial, the loudest signals could be received from the transmitter, assuming that they could be received at all. However, each transmitter put out waves on a certain wavelength measured in meters, depending upon the size and especially the length of their aerial. In order to achieve maximum receiving efficiency, the receiver had to be tuned to exactly the same wavelength that the sending station was putting out. As a practical matter, the receiving aerial was made shorter and was connected to a tuner which was simply a coil of insulated wire several inches in diameter with a slider contact arrangement that could move over and make contact with each turn on a bare spot through the insulation. Since all transmitters did not operate on exactly the same wavelength, it was possible to tune in each of them fairly well over a wide range. This was all the receiving

operator could do. There was no way of amplifying the incoming signal. Sometimes it took considerable skill to copy signals if they were not too strong, or if interference was being experienced from some other transmitter near the same wavelength, or if you encountered atmospheric noise called static. By 1922, a good deal of progress had been made in receiver tuning efficiency, and also in sharpening or getting more signal into a somewhat narrower band on the transmitters.

Our aerial aboard the ELIZABETH was a very good one, consisting of four stranded phosphor bronze wires, a little bigger in circumference than a good size wooden lead pencil. They had excellent electrical conductivity and incredible tensile strength which was needed in high winds and heavy seas. These aerial wires were spaced about two feet apart and attached through insulators to a cross bar. The insulators had to have the best possible insulating qualities and also had to have high tensile strength to withstand the very great strain put on them by the wires, especially in bad weather. All four wires were joined together in a fan shape connected with a single lead down through a very strong, exceptionally well-mounted, high quality insulator connected to our wireless equipment. The aerial was suspended with steel cables between and close to the top of both masts.

As a small boy, I had accompanied my parents on a voyage to Panama during which we encountered an exceptionally bad hurricane. No word was heard from us because our aerial was completely blown away, as were all of our life boats, and we "limped" into Colon three days late. In view of this experience, I did not feel that our aerial system was in any way needlessly strong, and felt very good about it as it was. The all-important feed-through insulator by which my messages were received and sent was naturally exposed to the weather. It was made to operate in rain and bad weather.

But as it accumulated smoke and moisture there was bound to be some leakage, especially in receiving, so I used to go up and wipe it off frequently to ensure maximum performance. Whenever we took on or discharged cargo, our aerial had to be let down and made fast along the rail opposite the pier so that it would not be in the way of any of our cargo booms or shore-operated cranes. When the operation was completed, the aerial was pulled back into position, but required one final detail. There was a halyard of fairly heavy line hanging from each end of the spreaders to keep the aerial wires properly spaced. These lines had to be secured to some cleats to keep the spreaders level. This required a seaman to climb up the ratlines to the crosstee on the mast, which was just wide enough for a man to stand on. Once up there, he had to reach out with one hand, without holding onto anything with the other, and somehow get hold of the halyard and bring it in and make it fast. This unpleasant and somewhat scary job usually fell to ordinary seaman "Slim" Jones. I always said a short prayer for his safety whenever I saw him engaged in this task. I suggested to the Mate that I rig some sort of short pole with a hook on it to make it a little less difficult, but I was overruled.

One day, poor "Slim" had borrowed another dollar from me and some time later came back and said, "Please, Mr. Sharks, loan me another dollar, will ya, please?"

"Slim," I said, "that's an awful lot of money for you to owe. I hate to see you lose so much."

He thought I was worried about not getting it back from him. Why should I worry? I was making $90 per month (I had made $120 per month two years before) and Slim was only making $30. Slim said, "Tell ya what, Mr. Sharks. You loan me another dollar and I'll leave you this ring, and if I don't pay you, you can keep the ring."

As he took it off his finger and handed it to me, he said, "It's a awful good ring, Mr. Sharks. It's worth a lot more than $2. My momma gave it to me after my daddy died in the mine."

I agreed to the small loan, and really felt sorry for the guy. I estimated the ring's maximum value to be a quarter.

Anyway, we continued to crawl through the mist and eventually made fast again to a pier in Portland, Maine, and began to unload coal, which was to take several days. I soon looked up my ham friend, Gray, and was immediately taken back into his group of friends like I hadn't been away. I was included in many pleasant social activities with them. He even had me come to Sunday dinner with his parents and other family members. When I tried to refuse on the grounds that it was an imposition on his family he said simply, "You are a ham and that makes you one of the family." It was a most pleasant experience indeed. We were there several days and were due to sail the next morning.

Word had gotten around the ship that Slim had gone ashore but hadn't come back. No one seemed to know what had happened to him. As I was about to go ashore that last afternoon, Capt. Thebauld said to me, "Vireless, if you can find that seaman Slim ashore, try and get him back on the ship or ve vill be shorthanded."

"I certainly will, Captain, if I can find him and I will look for him."

As I walked up the street along the waterfront heading for the post office to mail a letter home, I found Slim, dejectedly sitting on the bottom of some stone steps in front of a vacant old building. He looked up, and seeing me said, "Oh, Mr. Sharks, I'm so glad to see yuh, I ain't had nothin to eat since yesterday mornin' and I'm so hungry."

"We'll get you something to eat right away, but where in hell have you been?"

"I done joined the Marines, but the man said I wouldn't get nothin' to eat until I report tomorrow. Mr. Sharks, I'm scared."

"First let's get you something to eat." And we went into a waterfront restaurant catering to seamen. I ordered Slim a hamburger, a piece of pie and a cup of coffee.

"Mr. Sharks, do you reckon you could get me back on the ship?"

"Well, maybe, but tell me, did you put your "X" on any paper with the Marine man?"

"Yeah, ah did and he took down my tatoos an' everthing."

"Let's go back to the ship right away." Coming aboard, I asked Slim to wait out on the deck while I went in to speak to the Captain. "Captain", I said, "I have ordinary seaman, Slim, outside. Shall I have him report to Boats or the Mate or do you want to speak to him?"

"I'll see him. Bring him in."

"Begging your pardon, Captain, but in case you don't know it, Slim can't read or write in any language, and I had to show him how to make an "X" when we signed him on."

"OKay, Vireless," said the Captain, "send him in."

I did, and never knew what the Captain told him. But he soon came out, grabbed my hand and said, "Oh thank you, Mr. Sharks, I'm so glad yuh got me taken back."

"Now, Slim," I said, "putting your "X" on that Marine man's paper was a bad thing to do because that makes it like you are in the Marines, and you're going to fail to show up because we are leaving in the morning. He can consider that you have deserted and arrest you and put you in jail. So don't go back ashore tonight or any time soon if we come back in here to

Portland, or you could be in a lot of trouble."

"Thanks again, Mr. Sharks," replied Slim. "Thanks a awful lot."

"Forget the whole thing and just stay aboard if we come back into Portland again."

That was that. The Captain was happy, Slim was happy, and so was I. All it cost me was two bits--a dime for Slim's hamburger, another dime for his pie and a nickel for his coffee.

The next morning, we left early heading north, bound for Sydney, hopefully to take on another load of coal. The trip was pretty much routine, with a lot of fog, so I had to get many radio bearings. But there were no rough seas. We did have one clear day and the sun actually came out for a few minutes. In returning to my cabin after delivering a message to the Captain, I passed the relatively small hatch just forward of the galley. It so happened that the mess crew had made seven pies destined for our noon mess and had set them out on the hatch, all in a row to cool. As I passed by, I had a sudden urge to take one of those pies, which I did without missing a step. I quickly held it against my hip so it couldn't be seen as I passed the galley door. I ate the entire pie and heaved the pie tin over the side. I rather liked the cook and felt sorry for whatever embarrassment I may have caused him. We did get pie for dessert and one of the officers mentioned that he thought the pieces were rather small. Fortunately, no one complained to the steward. Poor cook may have begun to doubt his own judgement or ability to count. In any case, that ended my life of crime at sea and elsewhere. I never stole anything again.

About that time, something went wrong with the wheelhouse binnacle light that makes it possible to read the compass at night. The chief

engineer determined that it was lack of power, and with no way of getting to the trouble quickly, he suggested that a pair of wires with a light socket on one end be run over the hurricane deck and into my radio cabin, where the other end could be plugged in for power. The Mate asked me if I would handle it, which I naturally agreed to. Everything went along pretty well, although I had to splice several lengths of wire to cover the distance. Fortunately they came up with plenty of tape to insulate the connections. But I needed a plug to make contact at the source. The Mate thought a minute and ordered a seaman to break open a shipment of electric fans, and we took a plug off a fan. It was reasonably clear weather with a moderate breeze while we were working when the mate said, "Sparks, off the port bow," and behold, we were about to pass a six-masted schooner under full sail. Her sails were not the beautiful white so often depicted by artists, but rather a dirty grey. Nevertheless, she was a majestic and impressive sight as she slowly and silently slid by. We couldn't make out the name on her bow. The Mate said to me, "Take a good hard look at her, Sparks, because you will never see another like her again." He was right. I have always been grateful for that brief glimpse of a bygone era.

Another significant thing occurred in Portland. Sometime during the night, Capt. Thebauld left the ship for a much-needed rest and was replaced by Capt. Alanzo Nash. Capt. Nash was a native American and owned a farm somewhere in Maine. He was one of those remarkable men of average size, reasonably good looking, soft spoken, but who somehow exuded leadership without being overbearing. I immediately both liked and respected him, and so did the officers and crew. I did like and respect Capt. Thebauld too, but his manner was such that I never felt completely comfortable when dealing with him. Among other things, he thought that it was all wrong for a healthy,

apparently strong young man like me to spend endless hours cooped up in a radio cabin. As a matter of fact, I would have appreciated doing some occasional deck work while we were underway at sea, but I failed to volunteer for fear that if the Captain saw me doing so, he might get the idea that I should help with loading or unloading operations while we were in port. I had every intention of sightseeing ashore until it was time for me to supervise getting our aerial back up in place and made fast. However, Capt. Thebauld had Mate Koopman order me to do a certain amount of outside painting. The mate apologized to me in giving me the order. I told him I didn't mind and understood that, "orders are orders", but I would have to stop and stand my watch the first 15 minutes of every hour from 8a.m. to 9p.m. I asked him if the Captain said how long I should continue. The mate said, "No," so I told him I would paint some time every day, weather permitting, to obey the Captain's orders.

We were about a day out of Sydney. It was a clear day, even with spots of sunshine, and I was painting the hurricane deck near my cabin when Capt. Nash came along. "Good morning, Sparks," he said.

"Good morning, Captain," I replied.

Then he asked me who told me to paint, and I told him Capt. Thebauld. He then said, "Sparks, stop painting right now; put your paint brush in your paint pot and take them up to the paint locker in the bow and give them to the bosun. If the bosun isn't there, tell him you have returned the pot and brush as soon as you see him and I don't want to see you painting again as long as I am Captain of this ship."

"Thank you, Sir," I said, and went forward, carrying out his orders immediately. And that was that.

Another thing I wanted to do was to climb the ratlines up to the cross "T", but I wanted to do it when we were in port. Again, I didn't think it was such a good idea because word might get to the Captain or Mate, and I might be ordered to go up and make the halyards fast on each end of the aerial spreaders, possibly in bad weather, so I gave up on that needless dream. Wireless signals from the Sidney area were coming in stronger and we would soon be there to take on a load of coal if the miners had not gone on a threatened strike. In due course, the Captain gave me a radio message to Sydney giving our expected time of arrival as being late that evening. A reply soon came back ordering us to proceed to a certain pier on arrival. The Mate ordered me to take my aerial down and lash it to the starboard rail, indicating that we would be port side against the pier and likely to soon proceed to a loading area. It was late when we made fast and I turned in, no time signals or weather reports being needed. Next morning after breakfast, the Mate told me that we would not load until the next day. As things worked out, my friend "Put," the oiler, and I went to town together in the afternoon and thought we might take in a movie at the cinema, but we discovered that it didn't open for the first show until 7p.m. We wandered about for a while, when "Put" said, "Sparks, let's call on that millionaire friend of yours you told us about, or was that just a big story?"

"OKay," I replied with some misgivings, but we eventually found the house, went up the steps and I rang the front door bell. I was expecting the door to be opened by the smiling, gracious gentleman with the goatee that looked like Sir Thomas Lipton. However, I was a bit shaken when a very formal gentleman, who looked exactly like an English butler in the movies, opened the door and said, "Yes?" in a somewhat disgusted manner.

"We would like to see Mr. Burchell if he is in," I said. "Your cards please, gentlemen," and he held out a silver tray.

"We don't have any cards. We're just a couple of sailors from the American ship ELIZABETH," and before I had a chance to explain that his employer had requested that I call whenever in port, Mr. Burchell, himself appeared in the background and said, "That's quite all right, Jeeves, show the gentlemen in."

Putting out his hand to me, he said, "So glad you could come back, Mr. Sparks, and bring one of your crew with you."

Before I could recover and introduce Put, he turned to him offering his hand and said, "What is your name and rating, young man? This is most pleasant. Do come in and sit down," and he led us into the same library where he had talked to me quite some time previously. He asked about our trip up from Portland and asked Put a lot of questions about our ship's engines. What were their horsepower; what was the top speed they could deliver in an emergency, etc. Again, he impressed me as knowing a great deal about our company and operations out of Sydney. We told him we did not want to interfere with any of his plans and we had better be leaving. We did mention that we planned on going to the cinema when it opened at 7p.m. About that time, it began to rain very hard for quite a while.

"You simply can't go out in this weather. You don't even have oil skins (rain coats) with you, so stay a while longer." He must have pressed a button, because Jeeves appeared and Mr. Burchell said to him, " Please, make arrangements for these two gentlemen to stay for tea with us." Neither "Put" or I had any idea that "tea" would turn out to be a full course dinner, his wife pouring at one end of the table while Mr. Burchell sat at the other. His daughter and her son from "the States" were also present. To say the least, it was a bit of a dream. Here were a couple of crew members from a visiting American cargo ship dining with the most important people in Sydney. They were wonderfully friendly and informal, and when the meal was about over, the old gentleman said to us, "Bedford will

take you two gentlemen and our grandson with you to the cinema. You will arrive there a few minutes before seven." He stood up and the rest of us did likewise. Put and I did our best to thank them all for their wonderful hospitality. It was soon time for us to go to the side door and climb aboard the limousine for our trip to the cinema, where we arrived just at the promised time.

When we came out of the cinema, there was Bedford with the waiting limousine. He greeted us pleasantly and said, "Leonard, your grandfather has instructed me to take you directly home and then take the gentlemen to their ship." On the way, Leonard told me his grandfather wanted him to have a complete tour of our ship and that he would certainly like to do so. I assured him that anytime was alright with me, and to come whenever he could, but that I thought we would soon be loaded and underway again. After a pleasant good night from both Put and me as we left him, we proceeded back to our ship. Bedford assured us that he knew where it was. Put said, "Sparks, how were my table manners? Were they OKay?"

"Fine", I replied, "The only thing you shouldn't have done was fold your napkin back up at the end of dinner. You should just have left it sort of crumpled along the left side of your plate, but don't worry. Old man Burchell had us both sized-up for exactly what we are before we left, and I think he likes us both. He is quite a man."

By this time we were approaching the dock area and began passing the various waterfront dives and establishments where the sight of a uniformed chauffeur and limousine would be a bit of a sensation. But the trouble was that it was pitch dark and there was nobody outside to see us. Finally we wheeled up on the pier in a big circle and stopped less than 100 feet

from our ship's gangway. Bedford quickly left his drivers seat, got briskly around to the back door of the limo on the side nearest the ship, saluted smartly and opened the door for us. What a sight for our shipmates to behold, but there wasn't a soul on our ship to see our magnificent arrival. Even the night watch had left briefly for a cup of coffee.

Next morning, I told Chief Mate Koopman about our visit with the Burchell family, and said, "Poor Put, none of his shipmates are going to believe him and he may end up with a heart attack."

"I believe you, Sparks," replied the Mate. "I hear Mr. Burchell is a very important man in Sydney shipping circles," and that was the end of the story—almost. I was returning to the radio room and was just about to go in when a sailor came rushing up to me and said, "There are a couple of gentlemen visitors just aboard who are asking for you." At that same moment, Bedford, the driver, in a more conservative uniform, and Leonard, the grandson, approached me with a pleasant good morning. Bedford said, "Mr. Sparks, Mr. Burchell asked me to bring Leonard down for a possible tour of the ship. He said he had spoken to you about it previously and asked if at all possible to include the wheelhouse and chart room."

"Okay," I replied, "just a minute." The Mate was still close by and I called out to him, "Mr. Koopman, may I speak to you for a minute?"

"Certainly", he replied, and came up to us.

I said, "Gentlemen, this is Mr. Conrad Koopman, Chief Mate of this ship," and then explained that the younger man was Mr. Burchell's grandson, and the other his chauffeur, who said, "Begging your pardon, sir, but will it be possible to show Leonard the wheelhouse and chart room? I realize that this is a bit irregular, but Mr. Burchell asked me to see if it might be possible. He is most anxious that Leonard learn as much as possible about an ocean freighter and how it is operated."

"Fine," responded the Mate, "I will take you there first and Sparks can show you the rest of the ship and get some one from the engine room to show you things down there." In the wheelhouse, the first thing, the most obvious, the mate showed us was the wheel that steers the ship, saying to Leonard, "This wheel does not look too much different from the ones your grandfather handled on sailing vessels long ago. However, today it does not really steer the ship, but rather controls some steam pistons located in the stern that do the actual steering. A qualified sailor usually handles the wheel, but with one of the mates with him constantly during his watch, which is normally four hours."

Then showing us the compass, he said, "Just about everybody knows that the indicator always points north, but this is not always accurate and usually varies from true north to some degree depending upon the place on the earth's surface where the ship may be. This factor is called 'deviation' and must be calculated in establishing the ship's true location and direction while we are underway."

After covering other items in the wheelhouse, the Mate took us into the chart room, laid out several charts covering our area and on down the coast; showed how the bearing on light houses could help in establishing our position on a chart; and explained that radio compass bearings helped when we were in fog for prolonged periods. He showed us the ship's chronometer, which is simply a very accurate clock so mounted in gimbals that it stays level regardless of the angle of the ship. He explained that our chronometer gained four-fifths of a second each 24 hours, and that had to be taken into consideration when calculating our position while "shooting" the sun, etc.

By this time Leonard must have understood that navigating and operating a ship was a rather complex procedure, requiring considerable skill, knowledge and experience on the part of the Captain, all of his Mates and engine room officers in carrying out their various responsibilities, to keep the ship running and reaching its destination. Thanking Mate Koopman for his time and excellent explanations, I continued showing Leonard and Bedford the rest of the ship, including the cargo holds, the seamen's quarters in the forecastle where they ate and slept, and the galley where the food was prepared most efficiently, including making our bread and baked goods. I explained that while the officers ate in their own saloon, everybody in the crew received the same food every day. I showed them that the Captain, First, Second and Third Mates each had their own private cabins in the forward superstructure below the bridge. Then we located my shipmate, Putnam, the oiler, who gave them a tour of the engineroom along with a short explanation of how things worked in that particular phase of the ship's operation.

Leonard asked quite a few questions and was, I believe, quite impressed to learn that we could operate for six months without taking on fuel, water or food. Obviously, the final point of our tour was the wireless room. I showed them how my bunk went completely across one end of the cabin with the wireless equipment across the other end and partway down one side. I told them in the simplest language possible how the equipment operated and what my duties were, and something of my rough daily schedule while we were at sea, including getting weather reports, time signals and, most important of all, how we got bearings by wireless compass when we were in fog, which was a good deal of the time. Finally, I asked them if there was anything further I could do for them. They said no, and thanked me profusely. Then Bedford, the chauffeur, spoke up and said, "Mr. Sparks, Leonard is having

a picnic lunch with some of his friends tomorrow and would like you to join them."

Then Leonard spoke up and said, "I certainly do want you to come, and Grandfather said to tell you not to worry about getting back to your ship because she will not be moved to the loading area until day after tomorrow." Grandfather certainly knew a lot about our ship and its movements.

"I surely will be most happy to come, but I fear that I am imposing on you and your friends."

"Not at all," said Leonard. "I want you to come. Dress informally and bring your swimming suit if you care to swim, because we are going to be at the beach. We will all meet at the Post Office and leave at ten in the morning. You can get up there on the trolley. There will be several cars there to take us out. Thanks again for the tour of the ship. See you tomorrow."

As they drove away in grandfather's limo, it all began to hit me pretty hard. Here I was being invited to a social event involving the most prominent young people in Sydney. As practical matter, how was I going to dress informally: All the clothes I had were one suit, two white shirts and a decent pair of shoes, khaki pants and black shirt that seemed to be the usual uniform for ocean freighter wireless men, and a couple of sweaters. I finally wore my only good pants, a white shirt open at the throat and a pull-over sweater. Fortunately, my wardrobe was pretty much in line with the rest of the group as far as the men went. The girls wore all kinds of colorful outfits somehow intended to convey informality. In any case, they were a fine happy group of young people and accepted me and treated me as though I had been with them right along. Not long after arriving, Bedford drove up with the limo and unloaded a wonderful batch of food and Coca Cola. There was nothing alcoholic which was alright with me, because it would be several

decades before I sparingly used hard liquor. It turned out that the parents of most of the young people in the group were important people in Sydney. It wouldn't be proper to ask any of them directly, but Leonard filled me in. They were indeed, the children of bankers, ship chandlers, warehouse operators, etc. It was mid-summer and the sun had been shining all day, a real warm day in Sydney, but was by no means blistering hot. In any case, several of the young men in the group said they were going to have a swim before eating and would I care to join them. Naturally, I did. They all took a running dive as the start of a swim out to a floating dock. I was a better than average swimmer and was used to the cold summer water of Lake Michigan, but when I made my initial plunge, the water was so cold, that I thought I was going to die before I could reach the raft. I swam with all possible speed. There was no wind, and in the sun I soon recovered from the shock of the cold and then began to dread the thought of the chilling swim back. In time, of course, I did. None of my friends made any remarks to me or among themselves regarding how cold the water was, and I didn't either, but I always remembered it. After all, we were not far from Glace Bay and the sea water up there is a bit chilly even in summer. The picnic lunch couldn't have been better and I was amazed at the kindness and friendly treatment and conversation I enjoyed with all of the group. It was another one of those pleasant events that all came about because I inquired about the six wire aerial above the roof of a house in Sydney.

Late in the afternoon, the picnic began breaking up as various private cars took us back to the post office. Leonard and I were in the first car. There was a previous understanding that everybody would come back to the post office, where everyone shook hands with Leonard, thanking him for the outing, and with me, calling me Sparks and wishing me a good trip. "Enjoyed

being with you. Hope we see you again." It was all very nice. After they were all gone, Leonard shook hands with me and said, "Sparks, it was so nice of you to come, and thanks again for showing us around your ship." I assured him it wasn't my ship, but that it had been a pleasure for the Mate, the Oiler and myself to show him about.

"Be sure and look me up on your next trip here," Leonard said. "I want to talk with you about several things and to show you grandfather's yacht," which he assured me was not too pretentious. I gathered that "grandfather", because of his position in the community and his long years at sea, felt it an obligation to have such a vessel, although he seldom used it. Leonard said that it was named PARAGON.

"What makes you so sure that we will come back here to Sydney again soon?" I asked.

"Grandfather seems to think you will, and he seems to know a lot about shipping in and out of here."

"OKay!" I said, "So long and best of luck and my best to both your grandparents and your mother. It was wonderful having tea with them." And that was that, another memorable and pleasant experience at Sidney. I took the trolley back to the dock area and arrived in time for evening mess aboard. The Mate was the only other one in the saloon with me, so I told him about the afternoon.

He said, "It seems to be generally understood that the old gentleman is somehow involved with most shipping operations here in the harbor."

Next morning we began loading operations at a different pier, and in due course again put out to sea. As we left the harbor, I had the usual sad feelings and hoped we would get back there again. I never did learn of Mr. Burchell's actual position in the community.

Another reason I wanted to get back to Sidney was to visit Glace Bay, not too far distant, to see the spot and whatever might be left of Marconi's first commercial trans-Atlantic wireless station which had been located there. Marconi accomplished his first trans-Atlantic reception in Newfoundland, using a long wire attached to a kite for his receiving aerial, which in turn was connected with his very primitive--by today's standards —receiver. He had considerable difficulty because the winds were variable and stormy and the aerial was sometimes quite close to the ground and only in its most efficient elevation part of the time. After several days of attempts, on December 12, 1901, across 2170 miles of ocean, the now-famous three dots were received at Signal Hill, St. Johns, Newfoundland. There were doubters and skeptics who refused to believe the reception, but ultimately it was proven to be factual. Logically, Marconi decided that he would build his first regularly operating commercial station at this site. However, difficulties developed as a result of the Atlantic Cable interests who had an understanding with the local government that no other cable companies would be allowed to operate from Newfoundland.

About that time, Alexander Graham Bell contacted Marconi and advised him that he had land available for him at Glace Bay, Cape Breton Island, where he would have no difficulties or opposition to building his proposed trans-Atlantic wireless station. That's where Marconi built it. Since it was the site of the beginning of the era of regular two-way cross-ocean wireless service, it is by any measure an historical site of considerable significance. However, for some reason, the Canadians never seemed to consider the site as being historically valuable, or to use the large house Marconi built there in 1903 as a museum. Marconi, himself, lived in the house for many years. According to the April 1983 Journal of the Society

of Wireless Pioneers, "The great inventor based his operations in Nova Scotia for 34 years," which would be the time until Marconi's death in 1937. The Journal article also states, "Today, part of the wireless station and main residence remain standing." There must have been quite a bit I could have seen in 1922, had I been able to visit the site. On one of my later visits to Sydney, I did make inquiries about getting out there, but there was a coal miners' strike in progress and much violence, and I was warned by an old retired sailor who spoke with a Scottish accent, "If I were you, laddie, I would ner go anywhere near Glahs (Glace) Bay. There's a coal miners'strike out there and a violent bunch they be. Last week a stranger meaning them no harm was killed out there. Don't go, laddie, don't go." I had heard other reports of violence by the strikers at Glace Bay, and I took the old sailor's advice. So I never got to the famous Marconi site that I so much wanted to see, and there must have been quite a bit to see in 1922.

The fog was not too bad when we departed, and next morning dawned quite clear, but with a rising wind which had been predicted in the previous night's weather report. As the morning progressed, the wind picked up to gale force and we were hitting the waves pretty hard, but doing fairly well because we had a full cargo of coal. It got rougher and rougher and my weather reports indicated that it was worse ahead. I took these reports in writing up to the bridge and handed them to the Mate on watch. While it was very rough, it was not raining and I had no great difficulty making it from my cabin to the bridge and back, although we were rolling and pitching rather badly by now and there was spindrift blowing from the tops of the waves. But I was able to avoid most of it and kept fairly dry. Pretty soon Mate Koopman stopped in to the radio room and asked me how I was doing. Did I feel like I was getting sea sick? I told him, "No, I have been sea sick in

the past, but this isn't bothering me so far. But we do seem to be 'hitting the milestones' (the fabled stone mile markers on the bottom of the sea) pretty hard."

"We sure are, Sparks, and just between us, we have sprung some rivets and are taking on a small amount of water, but nothing serious so far."

The Mate left and we hit a couple times much harder than before. Then the general alarm sounded, bells ringing all over the ship which was the signal for every crew member to get to his assigned station or particular location on ship as quickly as possible. On the ELIZABETH, my duty was to call the bridge on the speaking tube connecting my quarters with the bridge. (This was long before the days of telephones or intercoms.) The speaking tube was simply a pipe about an inch in diameter with a spring cap and a small hole in it. To contact the bridge I lifted the cap on its spring hinge and blew hard into the tube. Because of the hole in the cap at the pipe's other end on the bridge, a loud whistle would occur. The Mate on duty would go over to the tube, flip the lid open and say, "Bridge," then place one of his ears tightly against the tube opening. I then spoke into my end of the tube and simply said, "Sparks reporting."

"Sparks, stand by," responded the mate, and once more I said, "Sparks standing by." The idea was that if the Captain wanted to send out a distress signal, I would be ready. All this time nobody but the Captain on the bridge knew whether the alarm was for real or just for practice. About that moment one of the messmen came bursting into my radio room. He was very agitated and said, "Mr. Sparks, the ship is sinking and you got to send a message to my gal in Asbury Park."

I said, "Take it easy. I don't know whether the ship is sinking or this is just a practice drill. Anyway, I can't send a message to anybody without the Captain's orders. Do you know where your station is for boat

drill?"

"Yeah," he said, "life boat No. 2."

"OKay," I responded, "get the hell outta here and up to your station, or we're both gonna be in a lot of trouble." And he did. The way the sea was running, there wasn't the chance of a snowball in a blast furnace of getting a lifeboat swung out and launched with any crew members in it. Even if one of the life rafts could have been pushed off, it would have been virtually impossible for any of the crew to have hung on. Finally, with the bells still ringing all over the ship, after what seemed to me to be a long time, my speaking tube whistled. I quickly responded, not knowing what the message from the bridge would be, simply saying, "Sparks here."

"The test is over," said the Mate. Nothing like a realistic practice in bad weather to impress the crew. Captain Nash was a good skipper. The Mate told me later that all American cargo ships were required to have boat drills at intervals. He didn't tell me how often and I didn't ask him.

It was soon apparent that we were in for real trouble when it was determined that some of the plates that had sprung in the storm were permitting a heavy inflow of sea water into our drinking water. Soon we had nothing but very salty water to drink--our food was too salty and our coffee hopeless. It was a very distressing situation. I soon understood that stories I had read of men suffering from lack of water in an open boat at sea following loss of their ship were not exaggerated. I remembered that occasionally we had oranges, perhaps at breakfast and that there were probably some in the food storage room. It seemed to me that if I could get an orange, it might relieve my thirst. But how to get some out of the locker seemed pretty hopeless.

At this point, I mention that I had once smoked cigarettes, but had given them up when playing football. I had become, instead, an occasional pipe smoker, with my pipe and a can of Edgeworth on my wireless table. However, I had learned that there were times aboard a ship when cigarettes could be of more value than money, so I always kept a few packs tucked away where they could not be seen, just in case an emergency might arise. Next day the storm had subsided and the sea calmed down. The messman who made up my bunk and swept out my cabin daily came in. He was the same one who just yesterday excitedly had wanted me to send a message to his gal in Asbury Park.

"Good mornin', Mr. Sparks", he said. "Have you got any cigarettes?"

"Why?" I said.

"Because I'm all out, and can't bum none from nobody."

"Well," I lied, "I might have a few left, but you know I don't smoke cigarettes any more, just a pipe."

"Will you please take a look, Mr. Sparks? I'd do most anything for some smokes."

"I only have part of a pack left," I lied again. "And I got to have a few for the Chief Mate because sometimes he hits me for one. Anyway, here's one you can have."

He was in again next morning as usual and said, "Mr. Sparks, I'll give you two bucks for the rest of them cigarettes you got if you'll wait 'til payday."

"No, I don't want to do that, but I just thought of something."

"Yeah, what?"

"Well, you go to the refrigerator room every day to bring out food for the Steward, don't you?"

"Sure."

"OKay," I said, "while you are in there, get me an orange and I'll

trade you a cigarette for it."

To make a long story short, he kept me in oranges and I kept him in cigarettes, but no more than two a day. We would be in port in a few days and everything would be fine again. While my conscience was bothering me for my despicable conduct to which I was driven by thirst, the messman thought I was the greatest guy in the world. I did enter in my personal log, "I would give ten dollars for half a glass of drinking water." And I have never been fussy about water since, caring little whether it is served with ice cubes or not. I gave the messman two packages of cigarettes as we were leaving port and told him to hide at least one pack for an emergency. So much for a realistic experience with the stresses between ethics and survival, on a personal basis.

We were again getting into heavy fog with our ship's whistle blasting every minute and a half, and soon came the Captain's request for bearings, which were always spelled out rather than using the code signals for numerals to insure accuracy. Naturally, I wrote them down the same way and personally delivered them to the bridge. When I took the first one up, the Captain said, "Thanks, Sparks. Keep getting me bearings every 15 minutes until I tell you to stop."

I kept this up for several hours. The sea was giving us a rather heavy but consistent roll, although there was not much wind. Considerably after noon, as I delivered my latest bearing, the Captain said, "Sparks, go down and get yourself something to eat. Don't take too long, but don't gulp your food down either."

"Thank you, sir ,"I replied, and I didn't eat too much or take too long and immediately got another bearing and delivered it to him. He sure was a considerate man. Along about mid-afternoon, the Captain said, "I think the fog will lessen pretty soon, but keep giving me bearings." I

haven't the slightest idea how he had made that judgment, but he was right. I brought him up the latest bearing about an hour later and visibility had slightly improved.

"Get me one more bearing, Sparks. I think that's all we'll need for a while."

I was delayed in getting in line with a compass station due to heavy traffic, when the Captain came into my cabin.

"Having a little trouble getting your turn, Sparks?" he said.

"I am just ready to start now," I replied, and started my transmission. The Captain was standing beside me. He had to be, because there was no place for him to sit down. I was pretty well along toward the end of my transmission when the ship, taking a heavy roll, caused my pencil to roll away from me. I reached a little too far and my left hand came too close to the copper tubing on which the transmission was going out. Suddenly a nasty and powerful spark jumped from the tubing to my hand. At the same instant, heavy sparks came around and above the heavily insulated knob to the fingers of my keying hand, while simultaneously, heavy sparks came from the steel plate of the deck, through a half inch of asphalt covering it, and through the soles of both my shoes. All this caused excruciating pain in the muscles of my arms and legs and put blisters inside my mouth. It all happened in an instant.

The Captain said, "Good God, Sparks, are you all right?"

I nodded, indicating that I was. Somehow, I finished the transmission, threw the switch to receive, copied the bearing completely, handed it to the Captain and collapsed.

He said, "Sparks, you took a hell of a jolt. Let me help you into your bunk," and he did. It was a bit of a job because by this time I was absolutely helpless and he had to get me over the fairly high board on the

outside of my bunk and put there to keep me from falling out in a heavy sea. He took my shoes off and said, "I don't know how in hell you finished getting the bearing. Now all you have to do is to lie still for an hour or so and you will slowly get your strength back. Don't try to get up. I have had experience with these things before. Don't worry about bearings. We are pretty well in the clear. I will have Mr. Koopman check on you in an hour or so. By that time you won't be so groggy."

With a great deal of effort I said, "Thank you, Captain."

I was going to apologize for my own carelessness, but before I could say anything more, he said, "Don't try to talk. Your dizziness will gradually go away," and he was gone. I listened for the fog horn of the ship's whistle because if it continued, it meant that we were still in fog. I didn't hear it but two or three times, and was thinking what a kind and understanding man Capt. Nash was. I doubted, perhaps quite unfairly, that Capt. Thebauld would have excused me for my careless stupidity, which I would have deserved.

For the benefit of any technically-minded readers, the following should give an estimation of the terrific electric jolt I received. The transmitter was a 2KW spark unit which was powered by 220 volts at 500 cycles. This was what my telegraph key was making and breaking. The output of such a transmitter at the base of the aerial—the point where the spark jumped to my left hand—was generally accepted as being between eighty and ninety thousand volts. The hot wire ammeter in series with this voltage was showing sixteen amperes, but since both the voltage and amperage were at high frequency, it was presumed to be something less forceful than the figures might suggest. Nevertheless, the combination of voltages and currents at different frequencies that passed through my body were, by any measure, extremely severe and painful.

I already had a healthy respect for possible personal danger from my equipment because of being careless with relatively low powered "ham" equipment. My respect was now increased to infinity. I thought I heard my cabin door open and realized that I was awake. It was the Chief Mate. Standing beside me he said, "How are you feeling, Sparks?"

"Not too bad. I guess I must have dozed off. I am no longer dizzy and things aren't spinning around anymore."

"Good," said the Mate. "You have been out for several hours. The Captain told me to check on you every hour and not to wake you if you were still sleeping. This is the third time I have been in."

"Oh, my," I responded. "I am so sorry about not being able to get bearings. "

"Don't worry about it, Sparks. Oddly enough the fog lifted soon after you received your jolt. Also the sea has calmed down and all we have now is a gentle roll. Let me help you and see if you can sit up and then maybe stand up."

He helped me and I did. Then leaning on him we went out on deck to get some fresh air. I leaned on a rail just outside and began to feel better fast. The Mate got me back inside and helped me to my chair at my equipment, which was the only chair in the place, and said, "The Old Man told me to get you some coffee as soon as you recovered so you just set here until I come back. He also said you shouldn't eat anything until tomorrow and you probably wouldn't feel like it anyway."

He was right, but I sure felt shaky. Very soon he was back with the coffee and said, "Here you are, Sparks. I fixed it with a little sugar and cream like you usually have it." I was amazed that he knew that much about me and utterly flabbergasted over the idea of the ship's Captain and First Mate personally looking after me. But as they say, "Strange things sometimes happen at sea."

The coffee really picked me up and I told the Mate I was sure I could get the time signals, weather and press starting at five minutes to ten. He said, "Try it," and he left me.

It was then approaching ten p.m. I did alright and was just finishing up on the weather report when the Mate came in and said, "I'll take the weather up to the bridge for you. The Old Man said for you to turn in immediately, and if we need any bearings during the night, we will call you."

"Thanks a million, Chief, and give my thanks to the Captain for everything. I really appreciate it all."

Next morning I woke up early, the sky was clear and the sea moderate. I went to eat early and thought it best to eat sparingly. I was getting back to normal in good shape but every muscle in my body ached and the blisters in my mouth hurt for several days.

By this time, we had received orders to proceed to Hoboken, New Jersey, which was a bit of a surprise. In any case, sailing into New York was, as always, a thrill to me, passing the Statue of Liberty, with the skyscrapers appearing to slowly get bigger and bigger as we approached them; seeing the flags of many nations flying from the sterns of ships coming and going; the always busy ferry boats hurrying back and forth along with other small craft; their various whistles creating a poetry of thrilling sounds, never heard in quite the same way anywhere else. This combined with the ever-changing panorama of sights and colors made for a most impressive experience, understood and appreciated only by those who have lived in its presence. I told the Mate of my feelings a bit apologetically, but he assured me that his feelings were the same as mine and always would be, as they were for all American sailors or passengers whenever they came into the harbor with the

feeling that they were back home again. As we approached the lower end of Manhattan, instead of veering right to go up the East River under the Brooklyn Bridge and beyond, we kept left and on up the Hudson on the east side of the City, past, and quite close to many of the skyscrapers, which was quite an experience. Finally, some distance up the river, we worked our way into our berth, which was alongside a very large warehouse that was set well back from the edge of the pier. About that time, I realized that there were no men there to help us make fast. It seems that the longshoremen were on strike, and while there were no pickets in sight, or anyone else for that matter, we received no opposition in our efforts to make fast. In a magnificent bit of maneuvering, Capt. Nash and Mate Koopman eased the bow slowly close enough for a couple of AB seamen to jump off, get hold of the heaving line and haul in the bow mooring line. With considerable effort they managed to get its bight over the bullard on the pier. The two sailors on the pier then ran along toward the after part of our ship, which was some distance away from the pier. An AB on our quarter deck finally got the heaving line to the men on the pier. With this they managed to haul the heavy mooring line in and get its bight over the bullard on the pier. Finally with the Bosun operating the donkey engine, we were able to slowly bring the stern of our ship parallel to the pier and make it properly secure all around. It was a fine piece of cooperative effort on the part of the Captain and the crew, which for lack of a better word, we shall call seamanship.

We were safely in Hoboken, at least reasonably so. When we got the gang plank down the Mate explained to me and the rest of the crew, "Whenever you go ashore, go through this large door," which was in front of the gang plank. "You keep right on going straight through the warehouse and out through the big door on the other side, then turn left and keep going

until you come to the gate and don't speak to anybody first. If they say, 'good morning,' you answer the same, but don't say anything else. Even though they don't carry signs, they are pickets and they are tough."

We all did it that way and had no trouble. Next day we moved to a different location quite some distance inland and did unload there, without any trouble. We were pretty close to what appeared to be a main street parallel to the water, but at right angles to the ship. Quite early the first morning after we had docked, a couple of very nervous and shifty looking characters came aboard. One of them approached me and said, "Hey, Sparks, how about some jewelry for your girl. We knocked off a jewelry store yesterday and got to get rid of this stuff fast. How about a good watch for yourself?" He showed me several. This was before the era of wristwatches and he showed me what must have been expensive pocket watches.

"If the stuff is really 'hot', I don't want anything to do with it," I said, "and if it isn't, it's probably junk and I don't want anything you have anyway."

He left me in a hurry and both he and his partner were rapidly approaching every crew member in sight. I noticed one of the engine room chiefs handing one of them some bills and putting something in his pocket.

Later in the day, a group of us took a walk up the street toward the main business district. I had no idea just where we were. Soon we passed a pawn broker's "Three Ball" establishment and somebody said, "Mack, why don't we go in here and see if that watch you got this morning is worth anything." Approaching the traditional little old man in the cage and laying down what appeared to me to be a new Hamilton pocket watch, Mack said, "I won this in a crap game. How much could you loan me on it if I should need some money in a day or so?"

"Watches like this I get plenty of and don't need. But if you really want a loan, I couldn't go a dime over $35."

So it really was quite new. I showed the old gentleman in the cage Slim's ring and said, "This isn't worth anything, is it?"

"Strictly carnival stuff, or maybe out of a box of Cracker Jacks."

"Thanks," I said, and we all went out. The area didn't look too promising and most of the crew went back to the ship. There wasn't even a bar in sight. But I decided to walk up and see where the better business area was. I finally came to what seemed like an important street. As I turned the corner, there, about a half block away, of all things, a Tiffany's Jewelry Store, obviously a branch of the nationally famous main store in Manhattan. I took a quick look in the show window and was amazed to see displayed a three element RCA vacuum tube mounted in a socket. It was fastened to a short panel on which was mounted a rheostat with a knob for adjustment. Also nearby were displayed a pair of headphones and some 22.5-volt Burgess "B" or "C" batteries.

I went in and bought a tube and socket and two of the batteries. I knew it was customary to use 90 volts in the plate circuit and hoped that the two in series would be enough to operate the tube, which I intended to surreptitiously connect to my receiver on the ship. I needed six volts to light the filament of the tube, but tapped that off my storage battery bank with no difficulty. My intention was to see how it worked without the proper voltage on the plate. If it didn't, then I could go back to the jewelry store and buy another battery, maybe two if I needed them. I spent $12.50, which was all I had with me.

Arriving back at the ship, I connected the tube and batteries to my receiver. I was utterly amazed at the reception I was getting with just

two 22.5-volt batteries in series, giving me 45 volts, which was half the recommended voltage. Since under the prevailing patent situation of the time we were not permitted to use tubes with our receivers, I immediately dismantled my equipment and put it in my suit case, intending to re-connect it when we again got out to sea. Otherwise, if an inspector had come aboard on a routine checkup and found my tube and batteries connected, our owners could have gotten into a lot of legal complications and I certainly didn't want to be the cause of any such trouble. Incidentally, once we got out to sea with my new equipment connected, the reception I experienced was simply incredible. Realizing that broadcasting was an accomplished fact with KDKA, the Westinghouse Company at East Pittsburgh, and WWJ, the Detroit News already in operation at certain scheduled daily hours in 1920, it was obvious that this development was going to grow. I realized further that there were already practical circuits using three-element vacuum tubes to amplify incoming radio frequency signals, feeding them into a three element detector tube which in itself was an amplifier compared to the crystal detectors we were using in wireless. Further realizing that it was possible to feed those signals from the detector into two stages of audio amplifiers, it was possible to come up with enough volume to operate a loudspeaker so that the whole family could hear a program at the same time without passing the headphones around from person to person as was done at first. Considering all these developments, plus their help to shipping even when using the same spark transmitting equipment, indicated a sure development in the transition from wireless to radio. As it turned out, the development was far greater and faster than I had any idea at the time, and little did I know then that I would be involved in some way at some level in every phase of progress as the whole thing developed into an industry. At the time, I was happy just being a wireless man on a ship in fulfillment of my boyhood ambition.

But to get back to Hoboken. One night, my friend, Put, and I went across to the big city, to what New Yorkers like to call the main four corners of the world, that is, 42nd Street and Broadway. We saw the Ziegfield Follies of 1922. We tried to buy a couple of good seats but all that were available were a couple in the second balcony. They cost us seventy-five cents apiece. But we saw and heard everything perfectly. Mr. Flo Ziegfield, who put on the show, said it was to glorify the American Girl. In any case, it was a spectacular review with many especially beautiful girls who could dance and sing superbly. There were solo singers and dancers as well, all exceptional. Gilda Gray did a dance that was talked about for years afterward. Scenery was changed frequently and the sets were all exceptional. One was a scene of an art gallery in which the statues came to life and danced most artistically. There was an orchestra of more than 18 pieces, and they too were all outstanding musicians. Interspersed throughout the show, usually while scenes were being shifted behind the backdrop curtain, were many outstanding and unique acts which, for lack of a better word, might be called vaudeville. There was an act in which two muscular men came out and wrestled quite rapidly, one of them throwing the other so hard he bounced after hitting the "canvas." Then they got up and did the whole thing again in slow motion, which took incredible strength. When the loser hit the mat, he bounced in slow motion.

Then there was the unique act of Will Rogers, dressed in full cowboy regalia, giving his inimitable patter about the news and at the same time doing really difficult rope tricks with his lasso. There was the act of Gallagher and Shean, who kept up a running series of funny stories which usually were rhymed to a special tune played by the orchestra. You couldn't say they danced, but they did move about rhythmically. They were incredible. No one ever attempted to duplicate their act.

Next morning I was leaning on the rail looking out over the river when Mr. Bowers, our Third Mate, came along. Just then a very long excursion river boat passed by. Mr. Bowers said to me, "There goes the WASHINGTON IRVING, the largest river excursion boat in the world. Take a good look at her, Sparks. You will probably never see her again. Her days are numbered. Because of increased labor costs and many new government regulations, it would be out of the question to build another like her." His words were much the same as the Mate's when we passed the six-masted schooner out at sea.

Leaving New York, I felt the same sadness as when leaving any port, but now it seemed more so. The skyscrapers and the Statue of Liberty seemingly got smaller and smaller as we headed for the Narrows. Eventually we met ships from many parts of the world coming in. As we headed eastward, we encountered fewer and fewer ships, finally "rounding the horn" at Nantucket lightship, then heading north, pretty much in the open sea and bound once again for Sydney. The weather generally was pretty good without too much fog, and with occasional spells of sunshine. There was no stormy weather, which was appreciated, since we were sailing light, that is, without cargo. One noteworthy event on a personal basis was the deal I made with the cook, who was, in my judgment, worthy of my consideration in his request for help. After all, I still felt sorry for the embarrassment I had caused him in the matter of my acquiring one of his pies off the hatch cover, without his knowledge or consent.

It seems that he was a bit foggy the last afternoon and evening in Hoboken and had neglected to get himself a carton of cigarettes. As I passed his quarters on the way to mine, he was resting on his bunk, looking over some old Sunday papers, especially the comics. He looked up, smiled, and

said, "Sparks, can you spare me a couple of minutes?"

"Sure," I said and stepped inside his small cabin. "What can I do for you?"

"Sparks," he said, "There's no use kidding around with you. You're too smart for that. The point is I need some cigarettes and I need 'em bad. Now, I know you only smoke a pipe, but I also know you got some cigarettes, even though you will say you haven't. I've never seen a Sparks yet that didn't. I know you don't want money, but maybe I can do something for you."

"Like what?" I said.

"Well, I know you are the kind of a guy that takes a shower every day when you're home, and so I know how you hate taking salt water showers here on the ship. Suppose I could set out half a bucket of fresh water just outside the galley door on the starboard side about four bells, which is when we are finishing up in the galley and I am the last one to leave. You could take the bucket way down in the engineroom where there is a small valve with a flexible tube attached. Shove the tube in your bucket, turn the valve and steam will come out, heating up the water. Then you got the makings of a nice warm freshwater bath. How about it?"

"Okay," I said, "It's a deal. I'll give you one pack every other day, and that's often enough for the half bucket of fresh water. How about it?"

"It's a deal, Sparks. I always thought you were a right guy."

I said, "We will start this afternoon, but I know you are dying for a smoke right now, so I will get you a pack right away," and I did.

That afternoon, I picked up my first half bucket of water as arranged, being sure no one saw me pick it up. I walked through the engine room door, which was close by, then down a couple of flights, always referred to on a

ship as ladders, then down to the bottom on a completely vertical ladder. This required a bit of skill, since I had the bucket in one hand and had to carefully let loose of a given rung and quickly grab the next one until I was all the way down. It's always noisy in the engineroom, making voice communication difficult. I was wondering how I was going to ask someone to show me the steam valve. But luck was with me. Who should be there just as I stepped off the last rung of the ladder but my friend Massey, the wiper, who showed no signs of recognizing me, but indicated that I should follow him. He showed me the steam valve and immediately disappeared. I didn't see anybody else while I was down there. I quickly heated the water in my bucket and immediately started laboriously working my way back up until I reached my cabin on the hurricane deck which was about as far above the steam valve as it could be. Finally, I luxuriously took a bath in warm, fresh water by putting one foot in the bucket at a time and feeling guilty as hell for misusing that precious fresh water. I had to throw the used water over the lee side and get the bucket back into the galley without being seen, which I did indeed accomplish, on several successive trips as well. Looking back these many years later, the whole thing may appear quite unimportant and a bit humorous. But at the time, it was a deadly serious matter between the cook and me which we resolved with commendable understanding and cooperation between us. It was a satisfactory, if not completely upscale business relationship. Neither of us ever mentioned our arrangement to anybody.

Speaking of my friend, Massey, the wiper, we were able to get in a good bit of further study and he never lost interest or failed in the "homework" I assigned him. He was completely amazed at the increased results I was getting by the addition of the single three-element tube which I had con-

nected to our receiver. I didn't try going into the theory of its operation, but I did have him memorize and draw a circuit diagram as to how it was connected. I urged him, when he got back ashore (and he had assured me that he did not intend to follow the sea in the engineroom) that he learn the code and study theory so that he could get himself a "Ham" radio station and operate it. From there on he could progress with the new technical developments that were sure to come in the brand new field of radio broadcasting. I assured him that if he really worked at it, he would find many opportunities in the technical end. Who knows, he might find he had sales or managerial ability. In any case, he would start by excelling in the technical end of the radio field. He said that he definitely did not want to be "Sparks" on a ship. Some time later, after I was back home in Ann Arbor, I heard that Massey had his first class station and operator's license, and was on the air in Hampton, Virginia. I can't recall his call letters. In time we lost track of each other.

The weather continued exceptionally clear and I had very few requests from the Captain for radio bearings. One pleasant evening, I was just coming out of the saloon from evening mess when overhead I heard Mr. Bowers, our Third Mate, who was on watch on the bridge, call out, "Sparks, come up here, please." He was standing the 4 p.m. to 8 p.m. watch and was on duty.

"Yes sir, Mr. Bowers," I said. "What can I do for you?"

"Nothing in particular, Sparks. Just want to visit for a minute or two." This was a most pleasant, if a bit irregular, situation. It was a strict rule that I never go up on the bridge unless responding to a call or delivering a message. Here I was being invited by the Mate on watch for what appeared to be a social reason. I might explain that Mr. Bowers was a very fine gentleman and officer and a full Captain who had commanded other ships,

but was serving on our ship as Third Mate so that he could sail with his long time friend, Captain Thebauld. Our First Mate, Conrad Koopman, had Captain's papers for "any ship of any tonnage on any ocean", and had, indeed, been Captain on other ships. The same was true of Capt. Larsen, our Second Mate. Mr. Bowers wanted to know about my family, my future plans, etc. He told me to be sure to finish college and give up being "Sparks." About that time, he looked at the distant horizon off our port bow and I noticed some smoke, indicating an approaching ship.

"Well, here comes the MAURITANIA, Sparks. We should get a pretty good look at her before too long."

"Good," I responded," But how do you know she's the MAURITANIA?"

"Well, Sparks, she's the only four stacker that would be coming from Europe this way, this time of the month. I know she's a four stacker by the amount of smoke she's making."

"Thanks," I responded, duly impressed. What men these officers were. They seemed to know everything that could concern them at any time. A remarkable breed of men. "Mr. Bowers," I said, "I suppose you started as a seaman on a sailing vessel. Would you mind telling me a little about it?"

"Indeed, I did. 'Before the mast', which was the lowest, most miserable job aboard. Through the years I managed to work my way up to AB (able seaman), bosun and wheelsman. Finally got my Third Mate papers and with long periods between, made it to Second Mate, First Mate and finally Captain."

"I can understand your learning everything there was to learn about being a good seaman, discovering the ability you had to handle men and get things done, but how did you ever learn navigation, which is a pretty complex subject, plus the many rules and regulations you have to know about?"

"It was a long, slow process which I picked up from friendly mates who told me what books I could get that were helpful. Eventually, I tried the government exam and failed the first time, but came back again after a suitable

waiting period and made it the next time around."

About that time, Mr. Bowers said, "Wait here a minute, Sparks. I will be right back." Soon he returned with a pair of binoculars through which he was now viewing the approaching MAURITANIA. Then he handed them to me and said, "You will need to adjust them to your own eyes, Sparks, but I think you will soon be able to read her name on her bow." He was right. The ship was quite some distance away, but a memorable sight indeed as far as I was concerned. It would remain forever in my mind like sighting the six-masted schooner a few weeks before. I would love to have been able to question Mr. Bowers more about his long career at sea, but I didn't want to take advantage of his hospitality. I did say, "Mr. Bowers, I am sure the unusual experiences you had would fill a book, especially considering that you have lived and worked through the transition from sail to steam, to say nothing of the coming of wireless. Maybe you could spare me the time to tell me a couple of unusual ones."

"Sparks, I will tell you a couple of stories that occurred in the last war (WWI) during which our freighters sailing to Europe with war supplies traveled in convoys for protection. They had destroyer escorts which gave them the best protection we could, but we did lose some ships."

In any case, in at least two instances, Mr. Bowers, as Captain, was given the assignment of getting a couple of freighters safely across with no escort, which he did. He told me of one case when a German sub surfaced alongside them as they were going up the Atlantic coast and tried to force them to run aground. The sub had no deck guns, so Mr. Bowers assumed that they were out of torpedoes. The U-Boat Commander shouted in understandable English, "What ship is that?"

Mr. Bowers gave them the name of some other similar ship that could have been in the area, and refused to "haul in" toward and run aground on the reef, which both he and the U-Boat skipper knew was close by. Finally the "sub" submerged and Mr. Bowers and his crew spent a most apprehensive 18 hours until they

were able to pick up their convoy as scheduled.

His second story was, in my judgment, a masterpiece as an old sailor's tale, for a number of reasons: it may really have happened since Mr. Bowers just could have pulled it off; moreover, he was a master sea story teller. He said that he and three other Merchant Marine officers, all at least with first mate's ratings were called together at a secret meeting at one of the Navy Yards. At the start, the officer-in-charge stated that they had all been investigated and were believed capable of handling the assignment which he would explain to them. When he had finished, any or all of them were perfectly free to refuse the assignment if they wished, and it would not be held against them.

Mr. Bowers told his story: "For months, we had been leaking secret 'misinformation', making sure it would get into German U-Boat captains' hands. The propaganda went like this: The U.S. for quite some time has been working on some very advanced and highly secret devices for submarine detection, plus new submarine depth charges that are absolutely devastating compared to anything known to be in existence. These devices are carried on only a few mystery ships, and a few have just been put into service on a trial basis. The ships themselves are fast and capable of extreme bursts of speed for short periods and carry no guns.

"This was propaganda we hoped would be believed by the enemy, at least to some extent. The briefing officer explained that in the yard there was a somewhat smaller and faster than average ocean freighter fitted out with additional power for added speed for limited periods. The camouflage people had done a wonderful job of altering the whole appearance of the ship so its profile was different when viewed from different angles. On the bows, clearly visible in large letters and numerals, was the notation SF156. This, we hoped, would confuse the enemy when they saw this combination of letters and numbers. They might assume

that this was one of those mystery ships, so they would stay clear of it. The entire ship was painted battleship gray, carried no guns and was technically a U.S. Merchant Marine freighter."

The officer said, "The entire crew, other than you gentlemen have already signed on. The engine room officers and all the men they supervise are trained in the use of the auxiliary power. The rest of the crew also are volunteer merchant sailors, including three expert radiomen, who can read high speed code through interference and atmospherics. Our receiving equipment is the finest available and is equalled only on a few battleships. The ship is already loaded, provisioned and ready to go with its vitally important cargo in sealed cases. It is of vital importance that we get this cargo across, quickly."

Mr. Bowers continued, "Next night we eased out of the Navy Yard with a small Naval vessel just ahead of us and another not far astern. For all practical purposes, no one attached any particular importance to our leaving. The Naval vessels stayed with us until we were pretty well up the coast, first one and then the other dropping out and leaving us on our own. We had specific written orders covering every detail of our trip to be followed exactly. Since we would normally cruise faster than the average convoy, it was fairly certain that we would overtake one, which we did. Our orders were to circle the convoy quickly once, and then sail with long zig-zags along each side of the group to indicate that we might be searching for evidence of submarines in the area. Finally, we did a similar maneuver ahead of the convoy and then took off at high speed on an angle from the regular course.

"Remember, we were getting reports on what might be ahead, as well as reported locations where subs were known to be active, so we could avoid those areas. The radio reception came from remarkable distances because of our exceptionally ad-

vanced radio receiving equipment. We did have some close calls, but managed to sail directly into the French port as ordered and made fast to the designated pier, among several Allied and American Naval vessels. Then I checked in at the headquarters building nearby and asked for a certain U.S. Naval commander according to my orders.

"He was amazed that we made it and said, 'Let's go down to your ship at once,' which we did.

'What do those numbers mean on the bow?' asked the commander.

'I thought you knew,' I said.

'Well then, what do the letters SF stand for?'

'Safety First,' I said, and then quickly added, 'Seriously, Commander, I don't know, but I guess they helped get us through.'

'Good', said the Commander, 'Let's go aboard and please take me directly to the bridge,' which I did.

He said, 'Please, Captain, sign the log showing that you are leaving the ship and note the time in the entry', which I did.

'Now,' said the Commander,'Please pick up any personal things you may have here in the bridge area and then I will go with you to your cabin while you pack your things, because you are leaving your ship now. Wear your civvies,which is probably all you have anyway, but wear your Captain's cap so as we walk up the pier to headquarters you will look like exactly what you are--a Merchant Marine Officer.'

'He put me up in a private room on one of the upper floors, had evening mess with me in the room during which he asked me many questions about our trip.

"He had me up and away, in a closed car with a couple of shore patrol men with us, before daylight the next morning. After not too long a drive we came alongside an American freighter. We went aboard immediately, where he introduced me to the Captain saying, 'Meet Capt. Bowers. He will serve as your First Mate

on your return trip to the States. He is a fine man, but you are not to ask him any questions about how he got here. He is under strict orders not to respond if you should.' Soon the officer was gone. It was just getting daylight when we cast off, headed back for the States. I finished the war on various ships in convoys and was lucky enough never to have any of my ships torpedoed, and Sparks, if you don't believe my story about the SF159, I won't blame you."

"But," I said, "I do believe your story, Mr. Bowers, and have heard stories, admittedly only reports, about a mystery ship that carried a secret and valuable cargo across the Atlantic in record time without an escort or being part of a convoy at any time. Now you have told me the true account of how it happened. Thank you very much."

Frankly, I did believe him.

"Mr. Bowers," I said. "I am scheduled to listen in the first 15 minutes of the next hour, so unless you have something else to ask me or tell me, I must be getting back to my shack."

"So long, Sparks," he said, "And be sure and finish school."

What a man, I thought, as I was going aft. He had sailed around the Horn in a windjammer, handled the mystery ship (at least I believed he did); was highly regarded by his peers; and then was kind enough to invite me to the bridge and urge me to finish college. As I turned to go into my cabin, I could see the MAURITANIA far astern. Just as I put on my headphones the watch struck six bells, so I was on schedule. I picked up mostly routine communications on the regular ship wavelengths. I also tuned in on 800 meters, the radio compass wavelength, and heard no requests or bearings given, so I assumed the weather was clear all around us. I took the weather report and my sketchy news sheet up to the bridge and gave them to First Mate Koopman, who was on watch. Then I went aft to my shack and turned in.

The next morning dawned bright and clear which was quite remarkable because

it was the first time since I had come aboard that we had two clear days with no trace of haze or fog, in succession. I wondered if it would last all day, which it did. Understandably, just about everyone in the crew, with the exception of the engine room gang—most of whom I seldom saw—seemed a little more friendly than usual.

I met Putnam, the oiler, and said, "HI, Put! How are things going with you in the engineroom?"

"Fine!" he responded, and then told me that they finally had the engines operating well at full power for the first time since leaving the shipyard. I asked him what speed we were making and he replied about ten knots, which was maximum, and everything considered, was a tribute to the engineroom crew.

Then I came upon "Slim" Jones, who was painting. Painting never stops on an ocean freighter. By the time the stern is finished, it's time to go back to the bow and keep working aft under the direction of the Mate, who seems to forever be finding blisters and getting a seaman to use a cold chisel and hammer to clean the paint down to the bare metal, and then paint it over again. It's an endless battle against the corrosive effects of the salty sea.

"Hi, Slim! How ya getting along?" I asked.

"Pretty good, Mr. Sharks. You can see I ain't leavin' no holidays while I'm paintin." (A "holiday" in ship lingo is a spot missed while painting a surface.) I was pleased that he had learned that bit. "An' Mr. Sharks, I'm doin' better countin' the spots on the cards. I got most of 'em learned now."

"That's real good, Slim. Keep it up and you will soon be an AB."

I judged that by this time he understood that AB meant able seaman—a notch above ordinary seaman, and it paid more money. As I walked away, I thought to myself, he sure is trying. He is putting out more in his efforts to become barely literate than wiper Massey is in his quest to become a radio man, or Put to

become an officer in the engineroom. I am pulling for them all...especially ordinary seaman Jones.

We had a moderate sea all day and a likewise moderate wind, which somehow seemed to impart a different and more pleasant smell to the sea as contrasted with when we were in heavy fog. Because of good visibility, there was no need of my being in my shack getting bearings, so I spent more time on deck and I noticed more ships in the distance. It seemed that we passed a good many fishing schooners close to our course.

I have always had great regard for these fishermen, be they "Cape Cod" or "Nova Scotia." There are few harder ways of making a living. They have to be rough, tough, courageous and endlessly persistent in wresting their livelihood from the sea. They, or at least their Captains, have an uncanny sense of where they are and where the fish are most likely to be running. Moreover, they are excellent sailors, in the true sense of managing the sails on their schooners in all kinds of weather. Their vessels usually seemed to have black hulls and dirty looking gray sails, but they always impressed me as things of beauty as we passed

One day as we were passing a fishing schooner, the Mate said to me "Sparks the difference between them and us is that we know about where we are and the schooner Captain knows exactly where they are. When it's time for them to go home they know exactly how to get there and they don't have any radio compass to help them. They are truly men of the sea, the hard way in every way." They certainly were and I would always remember them as the Mate had described them.

On the day we passed the six-masted schooner, I asked the Mate some questions about navigation in the fog. As we reached the binnacle light in the wheelhouse, he took me into the chart room and showed me how it was done. It was most

interesting to me and most kind of him. That night, as I handed him the weather report on the bridge, he said, "Sparks, if this weather holds, we should be back in Sydney sometime tomorrow night."

It did hold, and about noon the next day, I was ordered by the Captain to send the following message: "Expect arrive Sydney late today." I always thought these messages were in some kind of cypher. In other words, certain arrangements of words conveyed certain specifics other than the obvious message sent. I asked the Mate when we might arrive and he said, "Sparks, you know better than to ask me that question. I don't even know the specific message the Captain gave you to transmit," and that's the way it was. I am sure the owners had their own system of communications, beyond the obvious. In any case, unless we encountered some very severe and unexpected weather, we should get into Sydney before midnight. We did, rather late in the evening, but with enough daylight to get an overall view of the harbor coming in. It was quite a sight.

On all previous trips, there had always been a certain amount of haze or patchy fog so that visibility was always limited. We made fast at the same pier we had previously used, but not at exactly the same spot. There was no pressing need for me to take the trolley uptown at that late hour, so I just took a walk along the pier and turned in early.

The next morning I had early mess with Chief Mate Koopman. He told me that we would not take our aerial down yet because it might be a couple of days before we took on our cargo of coal for another trip south. That made it alright for me to go ashore whenever I wanted to.

As I approached my shack, who should be approaching but Bedford, the chauffeur, and Leonard. I shook hands cordially, with both of them, and Bedford said immediately, "I trust we are not inconveniencing you too much, Mr. Sparks, but Mr. Burchell asks that you call him on the telephone right away. He has arranged for you to call him in a shipping office nearby."

"Certainly," I replied. "Just give me a moment to lock my cabin door." Soon we were on our way to make the call, which I did from a private office with the door closed. On reaching Mr. Burchell, I identified myself and said, "Bedford said you wanted to speak to me. What can I do for you?"

"Most kind of you to call me so promptly. I would prefer to speak to you personally, but I have meetings that will keep me busy all morning, so we have to use the telephone. I have a substantial favor to ask of you and hope you can handle it for me."

"I'll do my best, Mr. Burchell. What is it?"

"It's about my grandson, Leonard, who, I believe, is with Bedford, waiting to take you for a brief tour of my modest yacht, the PARAGON. Leonard said he thought you might like to do that while you were here. Bedford, who is a seaman, has the keys and will explain things to you."

"Splendid," I replied. "But what can I help you with?"

"Leonard thinks a great deal of you and has said he would really like to sail on a ship underway, especially with you aboard. He is really a very good young man, only a year or so younger than yourself, and he has no serious bad traits, which is a tribute to his parents. His mother, I believe you understand, is my daughter. They live in the States in Knoxville, and confidentially, are very well off financially. But Leonard doesn't have the slightest understanding of the value of money, nor how hard most men work for a living. Now, if it could be arranged, it would be a wonderful experience for him to sail on your next trip down to Portland, Maine. I would hope that he could be signed on as an ordinary seaman, work and live with them, or if that is not possible, have him aboard as a passenger, but living, eating and sleeping with the seamen in the foc'sle. I want you to speak to your Captain Nash and see if you can convince him to do this. Tell him I will submit legal paper in which I will assume all liability for his welfare and for any liability he might possibly be responsible for. I want him to see first hand how hard ordinary seamen work for $30 a month on an

American freighter. Be sure also to point out that Leonard is an American citizen."

When he had finished, I said, "Mr. Burchell, I certainly would like to help you, but it seems to me that it would be better if you spoke to Capt. Nash yourself. If he doesn't know you personally, he knows how important you are in this area, at least that's what he told me."

"Mr. Sparks," replied Mr. Burchell, "You will have to take my word for it that there are reasons why I can't. Incidentally, your Captain will be busy ashore with shipping matters all morning, but should be back to your ship before mid-afternoon, so you should be able to speak to him later today."

It seemed to me that Mr. Burchell knew a very great deal about our ship and presumably others. "I'll do my best, Mr. Burchell, but you well know, as a former Captain that the Master of any ship is the ultimate authority. So if he says 'No' I can't pursue the argument much further. Remember that while it is customary to refer to Sparks as the radio officer, he is pretty much an honorary officer without authority except in specified emergencies, so my remarks to him would not carry the weight of any of his mates. But I will do my best.

"Thank you so much for the many kindnesses you have shown me on many occasions in Sydney and for the confidence you have shown me in giving me such a difficult assignment. I will get word to you just as soon as I can after seeing our Captain Nash."

I told Leonard and Bedford the substance of my phone call, but I didn't have much hope in selling Capt. Nash on the idea. Then Bedford said,"How about taking a look at the yacht?"

"Fine," I responded, and we did. It was moored quite close to Burchell's home. She was a 65-footer and gave me the impression that, structurally, she

could withstand rough weather like a seagoing tug. Her engines were very powerful—so Bedford said—and it was a reasonable statement as far as I was concerned. He had keys and took us for a tour below. Everything gave me the impression of being exceptionally strong. She was nicely, but not lavishly decorated and appointed. Bedford said that Mr. Burchell did not take her out too regularly, but occasionally sailed her with good sized parties of friends and their families. Bedford said he and several excellent semi-retired sailors handled the craft very well. I am sure they were good or Mr. Burchell wouldn't have used them. The craft struck me as being completely compatible with my impressions of Mr. Burchell's splendid personality.

"Leonard," said Bedford, "Your grandfather said I was to have you back home at noon, so we better get Mr. Sparks back to his ship and then get you home in plenty of time."

"That won't be necessary, Bedford," I replied. "I want to do a little shopping before going back, so just drop me off at the Post Office and I will take the trolley back to my ship after a bit. I do thank you so much for the tour of the PARAGON. In my judgement, for whatever it's worth, she is a most seaworthy craft, and please convey my thanks to Mr. Burchell. Assure him I will do my best when I meet with Capt. Nash later this afternoon, and I will report to him on the telephone as soon afterward as possible."

I did meet privately with Capt. Nash later in the afternoon and presented Mr. Burchell's proposition to him. He was most courteous and pleasant and asked me what I knew about Mr. Burchell's business connections. My answer was "nothing." He also said he had great respect for Mr. Burchell, was present that morning at a meeting at which Mr. Burchell spoke, but that he left soon after and Capt. Nash failed to get to meet him. Then he said, "Sparks, I am very sorry, but I cannot grant Mr. Burchell's request, as much as I would like to, for reasons that I

cannot give you. I am sure Mr. Burchell understands."

"Okay, Captain," I replied. "Do you want to dictate a reply that I can give him on the telephone?"

"No, Sparks, that won't be necessary. I have every confidence that you can handle it in your own words very satisfactorily. Just be sure to convey my sincerest best wishes and equally sincere regrets that I can't grant his request. Assure him of my high regard for him and that I congratulate him on his kind thoughtfulness in trying to help his grandson."

I said, "I will take care of it right away. There is a phone not too far from the ship and I have his number." I began to stand up since our conversation was concluded.

"Just a minute, Sparks," the Captain said. "Would you mind telling me how long you have known Mr. Burchell and how you met him?"

"Glad to, Captain," I responded, and then proceeded to tell him the whole story. When I finished, Capt. Nash said, "You have covered it very well, and I commend you on the way you have conducted yourself."

"Thank you, Captain," I said, and started for the cabin door. "I will keep our remarks as confidential as possible, but just about everybody is going to know about my meeting with you and why."

"Don't worry about it, Sparks. I know you will handle it properly."

I walked over to the office where the telephone was located and called Mr. Burchell. Not surprisingly, the old gentleman answered the phone himself. I identified myself and said, "Mr. Burchell, I know you are anxious to hear the results of my meeting with Capt. Nash, so I will give you the bad news first." This I did, then I told him of Captain Nash's high regard for him and of what I considered, in my judgment, his really sincere regret that he could not grant the request. Mr. Burchell agreed that Capt. Nash was a fine gentleman and Captain and appreciated his position. Then he thanked me most profusely for my efforts and assured me that no one else could have done any better.

So much for my efforts in representing two very fine older and most experienced gentlemen. I failed to accomplish what I hoped for. My only consolation was that I had really done my best, but I still felt badly about it. While still on the phone, I thanked Mr. Burchell and his grandson, Leonard, for the many kindnesses they had accorded me. He said, "Be sure and visit us on your next trip to Sydney. We will all be glad to see you. Leonard is due to go back to the States in about two weeks, but your ship will probably be back here again before he leaves."

Very early next morning, Mate Koopman awakened me from a sound sleep and told me to get my aerial down and made fast for loading. I got out on deck quickly and found we were already moving to the loading piers. Late that afternoon, we headed out to sea with a full load, headed for Portland, Maine.

The trip down was pretty good, not much rough weather and not too much fog. I did get several bearings from Cape Canso, Nova Scotia. Once again the Pilot sailed out in his schooner, climbed aboard and took us in through some spotty fog to the harbor, where we soon made fast and ready to unload. Pretty soon my Ham friend, Clancy, came aboard and announced that there were several social events coming up and that I was invited to all of them, as long as we were in Portland. I asked him how he knew we were in, and he said he had been listening to the ship to shore wavelength on his ham rig and had heard us call in our arrival.

I had many pleasant times with Clancy and his many friends. Like my ham friend, Krone, at Newport News, he seemed to know a lot of very nice people in the younger set and was a born party promoter, all of which made things most pleasant for me. I was always included in whatever outing was arranged, and I didn't mind it a bit that we went back to Old Orchard Beach several times. There was good swimming there. The only thing Clancy didn't have was a boat. Quite a few

people in the town did, but then Clancy's family was not wealthy. I was lucky indeed to have traveled in that era of super fraternity among hams. Sometimes I went ashore alone and looked at some of the points of interest. One day I visited the Wadsworth Longfellow home where the great poet was born and had lived a good many years.

Once more, we finished unloading and the good ship ELIZABETH cast off and left the harbor on a beautiful, clear day. We were nicely on our way when Mate Koopman broke the surprising news to me that Capt. Nash had left us in Portland and Capt. Thebauld had come aboard during the night. It seems that he had been quite ill, but had recovered sufficiently to come back as captain, spending most of his time in his cabin under the bridge. The Mate said, "There's nothing wrong with his memory because one of the first things he asked me was if Sparks was still painting. When I told him no, because Capt. Nash had told him to stop, Capt. Thebauld said, 'Get him back to painting.' I said 'Yes sir, right away,' and so I am telling you."

"Okay, Chief, I will resume my schedule starting today. No need for us to talk about it because orders are orders and that's that." Then I said, "You know, Chief, I respect the Old Man and maybe even I like him a little, but he sure seems like a crabby old guy. Maybe because he is getting over his recent illness, he is a little more touchy than normal."

"Sparks," said the Mate. "If you live to be as old as he is and have been cheated, lied to, swindled and double-crossed as many times as he has, I don't think you will be anywhere as nice a guy as he is."

"Gee, Chief, I never thought of that before and sure appreciate your telling me."

And so, due to the Mate's kind thoughtfulness, I picked up another bit of valuable information in making judgments that I would remember the rest of my life.

The trip back to Sidney was uneventful with moderate seas and very little fog. I only got bearings once from Cape Canso. I sent in regular TR's (Position reports) as of noon, the day before we expected to arrive at Sydney.

Once more, we were back in Sydney Harbor, but instead of proceeding to our usual pier area, we dropped anchor about a half mile or more out. Apparently the pilot had delivered the news that there had been considerable violence in connection with the coal miners strike and not much promise of a settlement for several days. Until there was, and coal was being put into the storage bins. We would not be permitted to have any of the considerable supply they had in reserve. Obviously, it was cheaper for our ship owners to anchor in the harbor than to pay for the use of a pier until we were ready to load. Two old retired seamen operated a very seaworthy launch that made trips back and forth from ship to shore. We had swung our jacob's ladder over the side to use in getting into or out of the launch whenever it came out, either picking up or delivering somebody.

The Captain or Chief Mate went ashore every morning to check on the situation. Sometimes they came back fairly soon and sometimes later. One morning the Captain went and I accompanied him. He was quite pleasant to me in his gruff way and surprised me a bit by asking me to stay with him for a while. We went into a grocery store uptown where they had some berries and fresh fruit. He had some of each put into two bags and gave me one of them saying, "Vireless, I know you get fresh fruit when you are home this time of year. Vee can't have it on the ship, so eat what's in the bag right now. It vill taste good and be good for you."

"Can't I pay, at least for mine?" I said.

"No," he replied and said, "Start eating right now," and stood there until I did.

"Thank you very much, Captain. I appreciate it a lot."

"That's Okay, Vireless, run along now and do whatever you vas going to do. You don't need me and I don't need you. I got business to go to." And he was off, eating fruit from his bag. I did likewise, standing there for a minute or two trying to figure it all out. Frankly, I was flabbergasted. I guess the old man had me painting again because he really thought I ought to get more fresh air, and really was concerned about me.

On previous shore visits, I had met a very nice young man who was trying to get started with a "ham" wireless station. He had rigged a better than average aerial which had attracted me to his home. He only had a receiver and was learning the code the hard way, like I did at one time, by listening to the ships calling in. He had made all of his receiver himself, except the headset, and he needed some more parts but said he could not afford them. His family seemed to be very poor but hard working and honest people. I told him I could get the parts quite cheaply in the States and would be glad to bring them up to him. In this way he could afford them. I think his father was one of the coal miners on strike. I never saw the man, but the boy's mother protested most vigorously against "defrauding the crown" by such action. I suggested that I would be happy to get the parts to him as a gift, or he could consider it as a loan which he could pay back later. But I couldn't put that idea over either. His people were just too honest. I gave up after a couple of visits and hoped that somehow he would continue to make progress with his amateur wireless station. With his attitude, it seemed likely to me that sooner or later he would. I hope that he did.

Soon after our arrival, I phoned Mr. Burchell's residence. The butler answered the phone, stating in a most important manner, "This is the Burchell residence. May I ask who is calling?" He said all this with what I might describe as a rather "British" accent.

"Certainly," I replied. "This is the wireless operator from the American freighter ELIZABETH. I have known Mr. Burchell for some time and have visited him there. He asked that I telephone him whenever we come into Sydney. So if he is available, I should appreciate speaking with him."

"Ah yes," replied the butler. "You must be Mr. Sparks that Mr. Burchell referred to. He said I might expect a call from you. I am terribly sorry to have to tell you that due to a sudden and unexpected development at the home of his grandson, both Leonard and his mother and Mr. and Mrs. Burchell all left suddenly for his daughter's home in the States. That's all I am permitted to tell you. It will be several weeks before Mr. and Mrs. Burchell will return to Sydney."

I asked him to convey my sympathy to whatever extent seemed proper and to convey my best wishes and thanks to Mr. and Mrs. Burchell for the many kindnesses they had accorded me in the past. But alas, the fates that had been so kind to me deserted me at this point and I never saw or spoke with any of those splendid people again. I never did find out just how deeply Mr. Burchell was involved in what he had described as "a few small interests." Capt. Nash had said he was a most important man in Sydney, but as far as I was concerned, he was a retired sea captain in good financial condition who loved all men of the sea, no matter what their rank, and he had been most kind to me.

Out in the harbor, the days wore on with endless rumors about the strike, encouraging one day and just the opposite the next. The actual strike was only about 20 miles from where we were anchored, as the crow flies, but might just as well have been in a far country in terms of anybody getting comprehensive information. I based this on what the Mate told me without my asking. I knew he would be limited as to what he might report, regardless of what the true information might be.

Oddly enough, we had a series of mostly clear, sunny days with perhaps a bit of mist early in the morning. The days wore on. I didn't go ashore very much simply because there was no reason to. I couldn't copy news from NAA very well and gave up trying to put out our brief news sheet. I usually went to bed early and ate early each morning. One Sunday, I thought that if the launch came out pretty soon, I might go ashore and try and find a church where I could attend Mass. Fortunately the launch did come, and I went back with the Mate who checked in somewhere to get the latest instructions. I left him and asked the trolley operator if he could direct me to a church. The trolley man said he was a church member himself and told me how to get there from the Post Office stop uptown. He also told me that I should get there just before the next Mass, which I did.

I recall that it was a modest sized church with much interior brickwork exposed and incomplete and with other obvious construction that was needed before the church would be completed. I gathered that the congregation generally was poor and making great sacrifices to get the job done. I was impressed enough to put a bit more in the collection than I normally would have. Since there was no reason to stay uptown with everything closed, I went back to the ship at the first opportunity. On the way back I spoke to the trolleyman about going out to Glace Bay to see the famous Marconi wireless station. He would not go out there under any circumstances because of the violence connected with the strike (which, according to him, seemed no closer to settlement), so again I did not attempt it.

One day my friend and student, wiper Massey, decided that we would attend the cinema for the one daily show at 7 p.m., so when we took the launch in we asked the old sailors if they would be around to take us back out to our ship later in the evening. They said they wouldn't be working much after 10 p.m., but if they had the tarp over the engine and were gone, we should just try the people

who lived in the cottages on the beach nearby, because most of them had small boats and boys who would be glad to earn a bit by rowing us out to our ship. The show at the Cinema ran a bit longer than usual, and neither Massey nor I drank liquor, so we didn't stop at a bar, but did drop in at a drug store where we were able to get a couple of ice cream sundaes. So we missed the old seamen and their launch.

By now it was pitch dark, but we could see lights in some of the cottages along the water. I rapped on the door of the first one with a light showing and a woman came to the door. She said to try two cottages down. We did, and there, two boys who couldn't have been over eleven or twelve years at most, hurriedly dressed to take us out to our ship in the dory. Their mother asked us the name of our ship and I told her ELIZABETH. She said, "Boys, did you hear that?"

"Yes'm," one of them said. "We know where she is anchored."

I said to the woman, "Are you sure the boys can handle this? They seem very young."

She said, "Don't worry, they go out with their father in the schooner sometimes and know how to handle a dory." And so they did. They put Massey and me in the stern and each of them took an oar. Never once did they turn around and look to see where they were heading. They just kept on pulling. We passed two other anchored ships on the way out and they pulled up to our ship with no difficulty. To Massey and me, it was an absolutely incredible bit of seamanship. I asked the head boy how much we owed them and he said, "Fifty cents."

I said, "For each of us?" and he said, "No, for both of you." Well, we gave each of them fifty cents anyway. The boys thanked us greatly and rowed off into the night and to home. No doubt they would be outstanding sailors aboard the fishing schooners by the time they were seventeen or eighteen.

The days wore on. It may seem strange, but even though we were anchored in calm water with good weather, the waiting began to get on our nerves. The deck hands were pretty well occupied by the mate who kept them busy chipping paint, but there was no need for the wheelsman to work a shift. The engineroom chief kept his men busy as best he could polishing and cleaning, but since we were not under way, there was no real need for the usual four hour shifts as there would be at sea. The one group that didn't have any letup was the cooks and messmen. They still had to put on three meals a day and keep things clean, but several of them told me they would be happier underway, going some place instead of just "sitting there" at anchor. Just about everybody except the officers kept asking me when we were leaving, somehow having the idea that I knew about it when nobody else did (which was not true). I was just as ignorant as the rest of them. Mate Koopman told me all he could from day to day, which always amounted to the same thing --we would be here a while longer.

Finally, he said one day, "Well, Sparks, it looks like we are going to leave here without cargo in a day or so." This wasn't much information, but it was something. Next day, he said no one goes ashore. Soon we weighed anchor and though we didn't know it, we took leave of Sydney harbor for the last time. The Mate said he didn't know where we were bound .

Our first day out at sea, heading south, the sea was moderate and hazy with occasional fog, but I received no requests from the bridge for bearings. Late in the day, I received a radio message: "Capt. Thebauld proceed Boston." I immediately delivered it in person to the Captain. Since I was bound by the oath of secrecy, professional and personal ethics, I mentioned the message to no one, not even to the Mate, although I was quite certain that the Captain told him about the message. The Mate understood this, too.

The next day, the Mate said, "Well, Sparks, the Captain just told me that we are going to Boston." It would now be proper for me to discuss the matter with the Mate or to answer any crew member who might ask where we were bound for. That's the way the system worked. Personally, I was quite happy at the thought of sailing into Boston harbor. As a matter of fact, I had never been to Boston and was sure I would find many points of historical interest in and around Boston when we docked there. The weather forecast I received that night was for both rough seas and fog the next day. Since we were traveling light--that is without cargo and with only a few hundred tons of water ballast to engage our propeller—we could expect to feel rough weather far more than if we had been fully loaded. But the next day's weather was better than we expected. The fog came and went. I was asked for a few bearings in the morning, but the sun came out briefly just at noon and our navigators got a good shot at it. I was able to send out a TR report in early afternoon.

The crew generally were happy now that we were under way again and heading for Boston, and so was I. The weather report for what lay ahead of us for the next day was for more of the same, that is strong winds, which would make for heavy seas with some fog. The sea wasn't too bad, and we had some haze and light fog when I turned in. Some time after going to sleep, I was awakened by being rolled over hard against the opposite side of my bunk, but I soon fell back to sleep. Next morning I met Mr. Bowers, our Third Mate, who had the midnight to 4 a.m. watch on the bridge. I told him about the severe jolt I had received during the night, and asked him if anything unusual had happened while he was on watch.

"We were going along fine," he said, "with good visibility. I told the bow watch to keep a sharp eye for anything ahead. Suddenly I got the feeling that there was something coming, and soon I saw rockets being fired dead ahead. I

figured it must be a fishing schooner right in our path and yelled to the wheelsman, 'Hard a port, hard a port and fast.' Since we were light she took ahold pretty good and quite quickly heeled over to starboard. Actually, it was all happening in slow motion, but considering the situation, it all seemed to be happening fast. I got out on the starboard bridge and, looking down, saw the schooner's port conning light glide past. They just missed us. Quickly I looked aft hoping that we would still miss scraping the schooner, and we did. It was as close a miss as ever could be. Had we been carrying a full cargo, I am sure we couldn't have turned soon enough and would have run them down, resulting in complete disaster. I thanked God for the near miss and suppose the crew of the schooner did too, although the dumb bastards must have known they were anchored too close to the down-bound coastal shipping lane and would be in danger of being run down."

So much for an incident of little consequence that by the narrowest of margins could have been a disaster. Nothing unusual happened after my morning's visit with Third Mate Bowers. It was a bit hazy all day, but not enough real fog to require any radio bearings. However, toward evening the sea was getting a bit rougher and my ten p.m. weather reports indicated that the winds would continue to increase, possibly to gale proportions.

During the night I began to be aware that the seas were getting substantially rougher. Finally we seemed to rather suddenly get into some really rough going so that every time we hit a big wave, our ship shuddered along its length until the vibration reached the area of our aftermast. This was not too far aft of my cabin, which was located on the hurricane deck and the farthest aft portion of our superstructure, putting us fairly close to the mast. Somehow the vibration would momentarily loosen the four stays of one inch stranded steel cable running from the rail to the crosstree of the mast. Then it would suddenly tighten them

up, causing a frightful sound like the plucking of the strings of a giant violin by some unseen monster. When I first came aboard the ELIZABETH, I wondered why there were four one-inch stranded steel cables supporting the aftermast on each side instead of the usual two. There were only two on the forward mast. Anyway, I found out that this weird behavior was a personality trait of this ship and all sailors know that ships do have personalities. Even so, the combination of the screaming wires along with the regular whines of gale force winds through the rigging produced an eerie and somewhat scary combination of sounds.

However, in spite of it, I went back in my bunk when there was a very loud sound, I would describe as a combination of a crash and a bang directly overhead of my cabin. "Oh, oh," I said to myself. "There goes the storage batteries. I hope we still have power." I got out of my bunk once again and discovered that we had no power for our radio, which could pose a very serious problem in an emergency, since our transmitter would be completely inoperable. It was operated by the current from a bank of storage batteries connected in series. These batteries were located in a couple of waterproof lockers with very heavy covers held down with clamps that could stand a heavy sea breaking over them. The batteries didn't exactly fit the lockers and were braced quite solidly with wooden two-by-fours. It seemed impossible that they could break loose, but they had. Some of the batteries slid away from the others, breaking the connections between them and resulting in no power output. The way the sea was running, it would have been impossible for a repair party to do the necessary corrective work.

It couldn't happen, but it did: A seaman came into my cabin and said, "The Captain wants a bearing."

"I'm sorry, sailor," I replied. "But due to the heavy sea our batteries have broken loose so we have no power."

Toward dawn the sea began to abate and by daylight Mate Koopman came in and said, "Let's see if we can straighten out your batteries." He had apparently been through a similar situation before. We were able to go topside and, with reasonable footing, get the covers off. We found the batteries badly scattered with connections broken in the one locker. Fortunately, the batteries in the other locker held in place. It was quite a struggle getting the heavy batteries in place and lined up in proper order again, but we did get them braced very well. I had a lot of trouble with the connections because they had to stand a heavy current drain, but we finally got everything in order again. I went immediately along with the Mate to report to Capt. Thebauld that the radio was working. Before I could speak he said, "Last night, I send a sailor back to you for a bearing and he says you tell him the vireless is all busted and won't work."

"That's right, Captain," I replied. "But it's working now. The batteries overhead broke loose and Mr. Koopman has just now helped me get them back in place and working. Shall I get you a bearing now?"

"Yes, Vireless, right away," which I did. When I delivered it to him, he did not ask for another. I think he just wanted to make sure that our radio really was working. He was a good and thorough Captain. The sea calmed down, but the fog picked up and I was busy getting bearings a lot of the time. I should have mentioned earlier that we operated the ship's radio transmitter on the battery source, but immediately following completion of transmission, we would start to recharge the batteries. Also, at intervals, I had to go to the battery lockers and check the cells to see if they needed replenishment of distilled water. In reasonably calm weather, I could do this alone. Otherwise I might need some help in lifting up the heavy covers.

The days slipped by and we began to think of arriving at Boston, but first

we got into some heavy fog. Capt. Thebauld wanted bearings on a steady basis and things were going along fine when suddenly my receiver and transmitter failed. I had certain ways of checking that my transmitter was sending out signals, and likewise positive tests to indicate that my receiver was working properly. But the space within my range went absolutely dead. I couldn't hear or get an answer from any station --not a compass station nor, after changing frequencies, a coastal station. I even called "CQ any ship pse (please) QSL" (acknowledge), and got no response. About that time a seaman arrived saying the Captain wanted a bearing right away, and if I couldn't get one, to come to him right away, which I did. The Old Man had a chart of the general area laid out. He said to me, "Vat's the matter with you, Vireless?" Pointing to his chart and the compass stations along the way, he said, "Ve are out here somewhere, God only knows where, with a storm behind us and a storm ahead of us, and you can't get a station. If the ship sinks it'll be your fault."

"I understand Captain," I said. I just don't know what's wrong. I will keep trying."

After two agonizing hours, everything broke into the clear just as if somebody turned on the lights. I got a good cross bearing and immediately took it to the Captain. He grunted acknowledgement and said, "Keep on getting bearings every fifteen minutes," which I did for several hours. Finally, we broke into reasonably clear weather.

About that time a rather nasty situation developed aboard. The Chief Steward, who was black, sent the black Bahamian messman--with the difficult sort of Island British accent -- down to the engineroom to request that the engineer on watch send up some coal for the galley stove. The engines aboard the ELIZABETH were operated from oil-fired steam boilers. However, the galley stoves used soft coal, a substantial supply of which was carried in several lockers just forward

of the galley. It was clearly stated in the Ship's Articles that the engineroom crew ensure that the galley coal bins were kept supplied with coal. All sailors know that the Ship's Articles are the absolute law applying to a particular ship for a certain duration or trip and are agreed to by every member of the crew when they sign on. As a matter of fact, by signing, sailors attest to the fact that they acknowledge the articles and agree to comply with them. The Articles are printed at the top of the "signing-on" sheet, and while many crewmen won't bother to read them, they are posted about the ship as a matter of policy. They show where each crew member must report to in case of a general alarm. These are generally referred to as stations.

It was unfortunate that the Chief Steward had sent the Bahamian instead of one of the other stewards, to request the coal. The engineer in charge was from the deep South and hated blacks. There were none in the engineroom crew. This, of course, was some 60 years ago, and antagonism toward blacks by many whites still prevailed. Possibly an American black wouldn't have set the engineer off, but the poor Bahamian's British accent was just too much for him and he blew up. According to my engineroom friend, Massey, who overheard the whole thing, the engineer called the messman a whole string of unprintable names and ended up with, "I ain't takin' orders from no black son of a bitch - now get the hell outta here."

So the messman reported back to the Chief Steward, who went back down with the messman himself and got nowhere with the engineer. The Steward reported this to Chief Mate Koopman, who went down with both of them to carefully and tactfully explain to the engineer the implications of failing to comply with the Ship's Articles. In a desperate attempt to get control of a situation, the Mate suggested that if the engineer would have one of his crew shovel at least a few shovels of coal in the container, that the mess crew would carry it up and get the rest

themselves. Then he wouldn't have to enter in the log that the engineer refused to comply with the Articles.

The engineer refused and at this point had technically committed mutiny. It had the makings of a nasty situation. Such news travels very fast aboard ship and soon the crew was taking sides, some with and some against the engineer. As always happens in such cases, false stories developed. We were due in Boston by late tomorrow or early the next morning. My good friend, Mate Koopman, came to me and said, "Sparks, the Old Man told me to ask you to stay away from the quarter deck, avoid talking with crewmen and stay in your cabin unless you are coming forward on business or to eat."

"Okay, Chief, I understand."

"I am not sure you completely do. The Old Man knows you are friendly with everybody. It would be easy for some of the crew to get you into a friendly conversation, grab you and hold you captive. They wouldn't want to harm you, but as long as you couldn't get to your cabin, the Captain would be unable to ask for help. What now seems like a minor incident could get us into real trouble."

"Frankly, Chief, I hadn't thought of that one, but you can be sure I will do exactly as ordered."

"Fine, Sparks. The Captain has been through many incidents and he just doesn't want this small matter to get out of control."

So I followed orders and immediately went aft to my radio shack and stayed there. About a half an hour later, the Mate came into my cabin with a message from the Captain to the company offices in New York. The message read, "Requesting landing instructions. Thebauld." Since we were bound for Boston and would normally receive landing instructions from the pilot, I was sure this message was in

some kind of cypher or code. In about an hour, I received a message for the Captain from the company which was, "Proceed Red Hook Flats Brooklyn." I delivered the message to the Captain personally and he accepted it, never changing expression and stuffing it into his pocket.

Bound by my oath of secrecy, I said nothing to the Mate about the message, but I asked him what kind of a place Red Hook Flats was, since I had never heard of it before. "That's a place where they tie up and decommission ships." Thanking him and saying nothing more, I began washing my clothes and getting ready to leave as soon as we got to Brooklyn. That night when I took the weather report up to the Mate on the bridge, he said, "Well, Sparks, we are going to Red Hook Flats." This meant that the Captain had told him and he could then mention it to anyone as he saw fit, but not quite, because he told me not to tell any of the crew.

The next morning I greeted the messman who made up my bunk as usual, but he didn't bring up the subject of the engineroom incident. If he had, I would have denied knowing anything about it. The weather was pretty good that day, but it began getting hazy again toward evening. When we passed Nantucket Lightship early next morning and started west along the southern side of Long Island, it was apparent that we were definitely not going to Boston. We made the turn all right in the haze, but suddenly we found ourselves in a dense fog, so the Captain wanted bearings right away. We were in a very busy shipping lane and he wanted to be extra cautious. We slowed down immediately to less than half speed and started giving our whistle a long, rumbling blast every minute and a half. It promised to be a very long morning. We knew there were other ships outward bound, but if we both maintained our proper courses, we should have no trouble. I kept bringing bearings to the bridge every fifteen minutes as we crawled along. There were bound to be other ships abaft as well, but we didn't need to worry much about them.

Shortly after noon, the Captain was kind enough to let me go down to get a cup of coffee and a little something to eat. I went to the galley explaining the situation to the cook. Remember now, he was the guy I made the deal with to get fresh water for cigarettes, and he still figured that I had done him a favor. He said, "Just you wait a minute, Sparks, and I'll fix you a cup of coffee, and one for the Captain and one for the Mate. You can sip yours for a minute and I'll make a couple of sandwiches for you to take back to them." When I arrived back at the bridge, I gave the Captain and Mate their coffee. "And now, Captain," I said. "I will go get another bearing."

"Vireless," said the Captain, "sometimes you are a good man." I went back to my shack to get another bearing and was lucky that I made contact with the compass station quickly and did not have "to wait in line." It wasn't often that way. We were getting ever closer to New York, but still had a long way to go in terms of the difficulties in navigation through the fog. But as time went on, the fog seemed to lift a little each time I delivered a bearing. Several bearings later, the Captain glanced at the one I had just handed him and said to the Mate, "Vell, Mr. Koopman, ve should pick up the lightship (Ambrose) in a few minutes."

"Yes, sir," replied the Mate.

To myself I thought, "This I have to see."

"And Vireless," said the Captain. "Go below and get yourself some coffee and something to eat and then get back to your vireless, in case ve need some more bearings."

"Thank you, sir," I said, leaving the bridge and stopping briefly at the galley, where my friend the cook gave me a cup of coffee and a quickly made sandwich. I held one in each hand and told the cook I was going to stay on deck for a few minutes and see how soon and how close we might pass the lightship as the skipper had said we would. To my amazement, within less than five minutes, we

glided by Ambrose in the quiet still water, so close I couldn't believe it.

We immediately slowed down a bit although we were already at less than half speed, which indicated that we would soon pick up our pilot. Sure enough, it wasn't long before the skiff from the pilot ship slid close by to our stern to record our ship's name and registry. It next came along our starboard side for the pilot to come up our jacob's ladder. He was met by Mate Koopman, who escorted him to the bridge, and within a matter of minutes, under the pilot's direction, we were on our way in to New York harbor. Incredibly, the fog began to lift and by the time we were through the Narrows, we saw clear sky and sunshine. Considering that for days we had seen only two colors--shades of grey and black of night--and didn't know what time it was without looking at a clock, this bright, sunlit harbor was really appreciated by all of us.

I was physically tired, very tired from long hours of getting bearings with only occasional snatches of sleep. However, I was much too interested in the sights and sounds of the harbor to even think of sleeping. The thought did vaguely cross my mind that I was close to the end of my wonderful days aboard the good ship ELIZABETH. I didn't quite realize that never again would I "fire up" my transmitter to request a bearing, transmit a TR (position report) or send another message. I was also vaguely aware that the trouble between the Bahamian messman and the engineroom officer was the reason why we would be tied up in Red Hook Flats instead of Boston. The word was out that tomorrow would be payday, but I wasn't sure that all the crew understood that we would be tied up indefinitely with only a skeleton crew left aboard. The rest would be laid off while the ship waited to pick up cargo of some kind bound for somewhere. In any case, the engineroom officer or the Bahamian messman or both would be laid off so that no further trouble could develop between them--trouble that only a couple of days

ago had led to near mutiny.

We were now meeting outbound ships, mostly freighters, pretty well spaced. Some were sharp and well painted, others a bit tired looking, flying the flags of many nations in addition to our own. I silently wished them all well and hoped that the fog would lift for them by the time they passed Ambrose Lightship on their way out to sea. I became aware of the Statue of Liberty some distance off our port bow, and beyond, the skyscrapers of lower Manhattan were gradually becoming more distinct in the sunlight. There were also a couple of freighters way ahead of us that had cleared the Narrows before we did. There was a pleasant breeze which was most welcome after the gloomy stillness of our days in fog.

After a while, I was standing next to First Mate Koopman as we approached the Statue of Liberty, which we would not pass too closely, since we had to bear off to our starboard to get into Red Hook Flats. We had both been looking intently and silently at the Statue for several minutes when I said, "Chief, this is only my fourth time in from the sea, past the Goddess, standing there resolutely in all kinds of weather, with her right arm forever raised in greeting as we come in, and farewell as we leave. The whole thing gets to me with something almost spiritual. Maybe I am getting carried away a bit too far."

"No, Sparks," the Mate replied, "I have come in here many, many times and it gets to me too, as it does to all Americans, passengers as well as sailors, who know they will be going back out to sea in a day or so. Somehow the Lady is able to make us all feel the greatness of America when welcoming us home. In all my travels, I have never seen anything as impressive in any other port in the world."

"Thanks, Chief," I said. "I am glad you said that. Now while we still have a few minutes, let me thank you for all the things you taught me while I've been aboard with you. I appreciate them all very much. Good luck and I hope you become Captain of the biggest ship in the world. I am sure you could handle it."

We shook hands, with no other crew members looking on. He was a splendid officer, an excellent navigator, and a master at handling all elements of the crew, a truly remarkable man whom I would remember with admiration for the rest of my life.

In the distance, a three-masted schooner crossed our bows, a beautiful sight indeed, but one that would soon be lost to inevitable progress. As we moved ever closer to the tip of Manhattan, everything around us seemed to speed up and become more intense: the kaleidoscopic effect of the ever shifting colors of sunlight on the skyscrapers; land sounds and odors we hadn't noticed before; the quiet sounds of water splashing against the sides of tug boats that always seemed to be in a hurry as they passed us. In the distance were the busy ferry boats that also always seemed to be in a hurry, going back and forth from Brooklyn to Manhattan. Governors Island was coming up on our port side and presented many interesting sights as we eased slowly by. But once we were in the clear and headed off to starboard for Brooklyn, the magic of the harbor was lost, for me, perhaps, forever. Soon we were made fast to our pier in Red Hook Flats, and that was the end of my last voyage on the ELIZABETH, except for goodbyes and checking out with the Captain.

By this time the rumor that the ship was being laid up and most of the crew laid off was generally accepted and any possible unrest was offset by the knowledge

that tomorrow was going to be pay day. I was very tired, and after checking with Mate Koopman to confirm that we need not take down our aerial (since we had no cargo to unload), I took off my shoes, climbed into my bunk and slept soundly until time for evening mess. That evening, I went ashore and looked around a bit, finding out how to get the nearest trolley and how to transfer to eventually reach Grand Central Station, where I hoped to get aboard the late afternoon New York Central "Twilight Limited" overnight train direct to Ann Arbor. Some of our crew went ashore that evening and patronized a couple of local bars. Without too much pay coming tomorrow, most of them were a bit careful about spending too much ashore.

My good friend, Massey, the wiper, came up to my shack in the evening and we had a pretty good review covering the technical points I had been teaching him. We talked about a possible future for him in the newly developing radio broadcasting field. He assured me that he did really want to get into it. I suggested that as soon as he got home, he get acquainted with some Hams to help him learn the code and study for a license which would permit him to use a transmitter. This would be a sure start, I assured him, from which he could continue to study and develop into as good a technical man as he wanted to become. (I ran into Massey in 1969, and indeed, he had become a radio man.)

Next, my friend, John Putnam, the oiler, arrived at my shack, so Massey and I shook hands and wished each other luck. I had a good talk with Put. He told me that he had been studying very hard and intended to take an examination which would qualify him as a third assistant engineer. Even if he failed, he would learn which elements he needed to study to pass it the next time. I told him that with his persistence and good attitude, I was sure he would eventually make it to Chief Engineer, regardless of any setbacks he might encounter along the way. We, too, wished each other luck, shook hands and said goodbye. I never saw him again.

I stepped outside my cabin and leaned on the rail looking aft for a while. It was quiet out there with the hatch covers still battened down and the loading booms silently vertical. To me it was all a bit sad. Never again would I handle the seamen getting my aerial up or down for loading or unloading, or see our mooring lines cast off so we could get underway. Sooner or later the ELIZABETH would sail again for somewhere with or without cargo, and with few, if any, of her present crew. I was grateful for the time I had spent aboard.

Back in my shack, I sat in my chair, realizing that never again would I start up my transmitter and hear the beautiful whistling note of my quenched gap as I tapped out a message in dots and dashes. I could still listen in on my receiver, tuning in some of the marine traffic. I could even listen to NAA at Arlington, one last time. I could tune in these same wavelengths on my Ham receiver when I got back home. (I would spend hours doing so, often hearing the shore stations I had worked while aboard the ELIZABETH.) It was getting late, but with my late afternoon nap, I was not too tired and decided to walk all about the ship one last time. The bridge, of course, was dark, and there was no one about. After making a rather complete tour, including looking down into the engine room, I went back up to my cabin, packed my clothes and turned in.

It was quite early when I woke up next morning, clear and sunny. Between the sunshine and the knowledge that it was payday, everyone seemed in a good mood. I put on my usual work clothes to help things look as normal as possible, with my one and only suit ready to change into when it was time to leave. Also, I wanted to go topside and see if any of the storage batteries needed the addition of distilled water. I wanted to leave my equipment in the best possible condition for the next Sparks, whenever he might come aboard. I had a five gallon jug of distilled water in my shack for this purpose. I had a sailor help me raise the

heavy covers over the two banks of storage batteries and was pleased to find that none of them needed any water.

Zeb came in my cabin to make up my bunk and sweep it out for the last time. He was the one with whom I had made the "cigarette-for-an-orange" deal when our drinking water became salty. He still considered this a favor. "Leavin' us, Mr. Sparks?" he said.

"Yup," I replied. "I think I'll go back to school. Zeb, it's been a pleasure sailing with you." I reached out and shook hands with him. "Just a minute," I continued. I reached into my locker and came out with two packages of Players Cigarettes I had gotten at Sydney. "You know I don't smoke," I said, "but these are left over and you might as well have them. Please don't tell anybody I gave them to you because I haven't any more for anybody else."

"Gee, Mr. Sparks, many thanks and good luck."

It was still quite early and I hadn't yet eaten anything, so I went to the Officers' Mess. There were only a couple of the engineers just finishing up when I came in. We said good morning to each other and I ate alone. On the way back to my cabin I met Third Mate Bowers, who had just come aboard. He said, "Good morning, Sparks, the paymaster is coming aboard later this morning. The Captain and Mr. Koopman will be back before long to be on hand when the paymaster arrives. They'll escort him to the saloon where the crew will be paid off a few at a time. Mr. Larson and I will get things ready for them right away."

I must have been the last one in for morning mess. I didn't meet anyone on my way aft but decided to move over to the pierside rail, assuming that the paymaster might soon come along. Pretty soon the Captain and Mate Koopman arrived. The Captain came aboard immediately and went forward to his cabin, leaving the Mate at the foot of the gangplank. In a few minutes, the paymaster appeared

some distance up the pier. He was wearing a short sleeve white shirt with no tie and carrying a substantial bag in each hand with a man in ordinary clothes on each side of him. Mate Koopman greeted them, but they did not stop to shake hands. They just kept moving up the gangplank with the Mate in the lead and the two guards behind the paymaster. They went directly to the Officers' Mess and set up for distribution of the payroll. In less than an hour they were ready and handled the whole thing very efficiently. The crew were admitted to the saloon three at a time through the port side door of the mess room. The pay for each crew member was all counted out with an identifying slip. He gave his name, was advised of the amount he had earned, could question this if he had reason to, signed for it, was paid in currency and left at the other end door on the starboard side.

One of the paymaster's men stood just inside each door. Chief Mate, Koopman stood outside the entrance door to keep things moving and to be available should anything require his attention. Inside was a long table with a continuous cushion along the forward bulkhead. The paymaster and the Second and Third Mates sat on this cushion facing the empty side of the table where the crew would pass. Altogether, it was a very effecient arrangement. If there should be any argument about a crewman's pay, the paymaster would act as judge and would traditionally give the crewman the benefit of the doubt. On this particular pay day each man was advised that he was laid off and that the ship was laid up for lack of cargo. I didn't see either the white engineer or the Bahamian messman. I had no way of knowing when the ELIZABETH might sail again. The whole pay operation didn't take very long. When the paymaster left, his suit cases still seemed fairly heavy which indicated to me that he had other payrolls for other ships to take care of, probably near by.

With the payroll completed, there seemed to be an immediate improvement in the general attitude of the crew, quite possibly because of the elimination of rumors plus the fact that everybody had some money in their pockets. It was soon a matter of most of us getting ready to leave. Slim came up to my cabin and said, "Here's your two bucks, Mr. Sharks. Please give me back my ring."

"Sure, Slim," I said. "Here's your ring. It's a real good ring. Don't ever let loose of it again. Remember your mama gave it to you and that means a lot."

Then, handing him back his money, I said, "Slim, you havn't got much money and you're going to need it to get by until you get another job. So just keep this until we meet again and you can re-pay me." We shook hands and that was the last I ever saw of Slim. I often wondered what happened to him.

There was a general moving about on the part of many members of the crew with a lot of "so long and good luck" between them, and with me, too. It seemed time for me to change into my "going home" clothes, so I did and packed my sea uniform into my bag. I decided to go forward and see if I could get the Captain to sign my license. On my way I passed the galley door quickly and did not see any of the crew, which was just as well. I would say goodbye to as many shipmates as I encountered on my way back. Fortunately, I got to Capt. Thebauld right away. Considering his usual gruff manner, he was quite accomodating, and as he handed the signed license back to me, he said, "Vireless, don't feel too bad about not being able to get them compass stations ven we vas approaching Martha's Vinyard. I had that happen before, but I still think you vireless men is ganging up on us Captains." He was smiling as he said it.

"Thank you, Captain," I said. "I've made a lot of trips through that area and never had that trouble before, so it bothered me a lot."

"It's all okay now, good bye and good luck," he answered, and I left.

He really was a splendid man and a good captain. I recall that one day I was on my way to see Mr. Koopman, and as I rounded the corner from my cabin, I came upon him in the process of dressing down a sailor for having done something wrong. Just as he was finishing with some strong language, the Captain came around the other way and heard him. The Captain then proceeded to reprimand Mr. Koopman rather harshly for speaking so pointedly to the seaman. The Mate was properly humble and said, "Yes, sir," as the Captain walked away.

When the skipper had gone, I said, "But Chief, you were right. You should have explained the situation to the Old Man ."

"Don't worry, Sparks. He will figure it out and make it up to me sooner or later. You must understand that as Captain of the ship he has got to be right. Suppose I had tried to explain the situation to him and that sailor heard me. Within a matter of minutes the rumor would be all over the ship that the Captain and the Mate had an argument, resulting in a complete breakdown of respect for the Captain, which he must unquestionably have to run the ship."

"Thanks for telling me, Chief," I said. "I didn't realize that, but I understand it now."

"Sparks, how old are you?" asked the Chief.

"Twenty," I replied.

"Well," said the Chief. "If you get to be as old as he is and have been lied to, double crossed, swindled and cheated as many times as he has, you won't be anywhere near as nice a guy as he is."

Since the Captain's cabin was just around the corner from the Officers'

Saloon and it was a bit past noon, I decided to go for noon mess. I didn't like the realization that this was the last time I would eat aboard. Third Mate Bowers, Second Mate Larsen and a couple of the engineers were the only ones present.

"Well, Sparks," said Mr. Bowers. "You look like you are all ready to cast off for good."

"Yes, sir, I am," I replied. "I'm not too happy about it, but like you told me, I'd better get back in time for school."

Mr. Larsen, who never said too much, but was a likable man, surprisingly said, "That's good. You'll never be sorry." He did speak with a bit of a Scandinavian accent.

I wasn't too hungry and was ready to leave before the others were finished. On the way back to my cabin, the steward and cook both spoke to me and knew by my clothes that I was leaving. I thanked them for the good food they had given us and told the steward to give my thanks to all the messmen who did such a good job. In my cabin I took one last look around, especially at my equipment. I had cleaned and polished all the copper work, had tightened my quenched gap for best operation, cleaned and dusted everything and left it shipshape for my unknown succesor. A bit sadly I picked up my only bag and left. I didn't meet anyone else except the bosun at the gangway. "So long, Sparks," he said.

I assumed he would remain aboard as part of the skeleton crew until the ship sailed again. It was some distance before I rounded the corner of a warehouse to get to the street. I took one last look back at the ELIZABETH with nothing but fond memories. A few blocks away I got aboard a trolley, starting my journey to Grand Central Station. I had to transfer several times, but everybody was very helpful in telling me how to get to my destination. As I recall, I rode on

a trolley, an elevated train and a subway to end up at Grand Central Station. It was, especially in contrast to a ship at sea, a wildly busy place with hundreds of people hurrying to and from various train gates, with train callers who had voices like circus ring masters, endlessly announcing the arrival and departure of various trains. After asking a couple of people, I was able to find the area where tickets were sold.

I managed to get an upper berth--cheaper than a lower—on a Pullman, leaving late in the afternoon for Chicago. I would get off at Ann Arbor, the first stop beyond Detroit, and be home. The train would not leave for some time, so I bought a newspaper and then realized that I had not seen one since I went aboard the ELIZABETH. I never bought a paper at Sydney, Portland or Hoboken. There wasn't a war on, I was getting the ball scores and any headline news each night from Arlington. Nothing sensational was happening in any of the places we docked so I just didn't care about getting a paper. And now after checking the ball scores, there wasn't much of interest to me in the rest of the New York paper.

My train was on time and I was glad to get aboard. I especially enjoyed having supper in the dining car. I really appreciated the waiters who were so friendly and served us with nearly incredible skill by keeping their balance and never spilling anything whenever the train gave a sudden and unpredictable jerk. Their job was to get you served and away from your table as quickly as possible without your realizing it so that they could serve a large number of people on the train, many of whom were waiting in line. I had learned about this when traveling with my parents many years ago before my father's passing. My waiter tactfully indicated that he appreciated my obvious cooperation. I looked out the window at the Hudson River as we sped along, and continued to do so from my window seat back in the pullman. Later in the evening, the porter skillfuly began making up berths for the night. I had no trouble climbing up the portable ladder and

getting into my upper berth where I was soon asleep.

Next morning, as I was enjoying breakfast, we were going through Canada on our way to Detroit and westward. We arrived in Ann Arbor on time. It was a bright morning, and since my home was only three blocks away, all up steep hills to my home, I didn't in the least mind walking since my suit case didn't seem heavy. I was greeted pleasantly by some of our neighbors as I passed by on my way home. I believe that my mother, God rest her soul, was, I am sure, happy to see me, because the first thing she said was, "Registration at the University of Michigan starts day after tomorrow, so you can check into the Engineering School on time." This I did, having already spent my freshman year at the University of Virginia.

Looking back, she must have been terribly apprehensive, lest I be aboard ship going to God only knew where and missing college this term. Our home was located at the corner of Kingsley and Elizabeth Streets. My room was on the first floor with a door on to a porch on the Elizabeth Street side. Even the street would remind me of the ELIZABETH. This was the room where I slept, studied and where my fine amateur station, in first class operating condition, was located. With this arrangement, my Ham friends or anyone else looking for me could check at the side door instead of bothering either my mother or my two sisters in answering the front door bell. My sisters lived at home and attended the University. As soon as word was out that I was back home, all the local Hams began coming to see me. I also got to meet quite a few students who were Hams at home, and I was most pleased to have them visit me and inspect my station. None of us had cars in those days, which was no great problem since most students lived in rooming houses near the University, which was only about four blocks from our house.

By this time, Hams generally were using three element vacuum tubes in place of crystal detectors in their receivers, which gave the receivers much greater sensitivity with the ability to pick up signals from a greater distance. (I described previously how I had done this with the ELIZABETH's receiver, increasing my receiving range to a phenomenal degree.) I spent many hours in Ann Arbor, listening in on the marine wavelengths, especially at night when reception was always better. I could hear coastal stations all the way from Cape Race to Key West part of the time, and most of the coastal stations between Bar Harbor, Maine and Cape May, New Jersey, (many of which I had worked from the ELIZABETH) every night. I listened hopefully, but in vain for a call to or from K O R C, the call letters of the ELIZABETH. I even tried the compass stations' wavelength, but got absolutely nothing from them. Of course, they only operated when coastal ships were in heavy fog.

It was always on my mind that I would get back to sea again as "Sparks." I didn't know it then, but I would sail one more time as wireless operator aboard the Great Lakes ore carrier W.H.McGEAN.

A postscript: I never knew how soon the ELIZABETH sailed again after I left her, but incredibly, in 1947, I met the man who succeeded me aboard her as Sparks. I met him while attending a meeting of the National Association of Police Radio Communications Officers. During the cocktail hour before dinner, a group of various types of radio men, mostly strangers to each other, became friendly and quite talkative about their experiences. Suddenly I was aware that a man near me had mentioned Captain T. Thebauld.

I went over to him right away and asked him who Captain Thebauld was. He was just a trifle irritated and said, "He was captain of an ocean freighter I worked on. What's it to you?"

I asked him if it was the ELIZABETH and he said yes, and how did I guess it? I told him because I, too, had served as Sparks aboard the ELIZABETH under Captain Thebauld.

"When?" he asked.

I told him in 1922, and it turned out that he too, had been aboard in 1922. We then determined that he was the man who came aboard after I left and the ELIZABETH had been put into service again. Immediately we were friends as only such a tie could produce. His name was Adolph Schwartz and he was a manufacturer's agent for some radio producer in the East. Who knows what prompted him to mention Captain Thebauld in our social gathering, but I will always be grateful that he did.

To round off my story about the ELIZABETH, I should reveal that in 1982, after many years of research and rumors, I was able to confirm that this fine ship ran aground off Miami during a hurricane in 1935. Fortunately, none of the crew were lost, but the vessel was so badly battered that it had to be scrapped.

A.H. Bull & Co. later acquired another freighter which they renamed the ELIZABETH. I regret to report that this ship, too, met a sorry end, being torpedoed by a German submarine in 1942, and sinking with six crew members lost.

CHAPTER XII

ON THE GREAT LAKES

ABOARD THE W. H. MC GEAN

It was early summer in 1923. I had finished my second year of Electrical Engineering at the University of Michigan in Ann Arbor, where I was living at home with my widowed mother and two younger sisters. I had spent my freshman year at the University of Virginia. I was becoming increasingly apprehensive because I had received no word from any of the agencies I had applied to for a job as a radio man aboard any ship bound for anywhere from any American port. I had carefully filled out all the application forms which showed that I was qualified, had working experience on two different ships, had the proper current license and so forth. I feared that possibly I was in trouble because, when I completed the application, I showed the date that I would be available as being two days past the end of the college semester. Maybe, I thought, that caused me to miss some opportunities by being too late.

My follow-up inquiries to the agencies always brought the same form letter reply stating that they had my application on file and would notify me when they had an opening. I decided that the very next morning, I would go to one of the U. of M. construction projects and ask for a job as a laborer. This was simple and easy because it was long before the days of withholding taxes, social security, etc. But then I received a telegram from the RCA Agency in Chicago offering me a job aboard an ore carrier out of Chicago. I was to notify them immediately if I wanted the job and to report to their downtown Chicago office at 9 a.m. next morning. I was really happy and practically ran all the way down town to the Western Union office to send my reply of acceptance and assurance that I would report to their Chicago office on time. My mother was really not happy, but was relieved to know that I was going on the Great Lakes and so would not end up in some far-away foreign port. Engineering classes began in the fall, and even if my job held until the winter closing of the Lakes, I could still resume classes at the start of the second semester.

Packing was very simple and easy. On my first ship, the PULASKI, because of its various destinations, I needed warm heavy clothes as well as light-weight summer ones. I ended up with three suit cases. On my next ship, the ELIZABETH, I took only two bags, one regular sized and one small. On this Great Lakes ore carrier, which was named the W.H.MC GEAN, I knew I would be in warm weather most of the time, so I wouldn't need many clothes. In addition to my good suit, shirt, tie and shoes, all I would need would be a pair of khaki pants, a couple of shirts, black or dark blue, a pair of shoes with rubber soles and heels, my safety razor, a heavy sweater in case we got into cold weather, a Navy-type white hat like the enlisted men wear that would stay on in a strong wind, and a couple of changes of underwear. I was all set.

I easily packed these few things in a very small bag. It was leather and looked something like a doctor's bag but bigger. It had belonged to my father, who had traveled widely both at home and abroad, so it had a sizeable collection of customs stickers on its outside. It made me appear to the casual observer that I was an experienced world traveler, which I wasn't. At least I had been to Panama and both coasts of the U.S. by then.

The New York Central Railroad Depot was just three blocks from our house, so I went right down to find out how I could best get to Chicago in time for my next morning's appointment, and at a price I could afford. It turned out that I could take the westbound local, getting aboard about half past midnight. Day coach fare was cheapest, so that was the kind of one way ticket I bought. I got to the depot a bit early. No one was there except the station agent. The bulletin board marked in chalk indicated that my train was on time. When it came in, one young man got off, as I got on. The conductor said to me, "Where to?"

"Chicago," I replied.

"Coach to the left," he said. Fortunately, I found an empty seat a couple of rows from the back, put my valise on the rack above the seats and sat down, appreciating that I could, at least, lean my head against the window frame and try to get a few snatches of sleep.

The car was pretty well filled with noisy men. They weren't troublesome, just a lot of them talking rather loudly. They were not well dressed, and appeared to be working men. One young guy surprised me a bit by asking if I minded him sitting with me for a while to wait for a friend ahead who was talking with some others. I assured him he was welcome and asked him who the group was. It turned out that they all had just been given an extensive layoff from Ford Motor Company, and most of them were going to Chicago to visit relatives. After a while his friend up forward became available, so he left with both of us wishing each other luck.

The train was indeed a local, stopping at all the express train stops and all the others in between. It wasn't really too bad because there always seemed to be something interesting at each station. Gradually the loud talking subsided and I got a few short spells of sleep by getting as comfortable as possible in a sitting position.

The night wore on as we moved ever closer to Chicago. The dawn and daylight increased our ability to see the sights, especially as we neared the Windy City. Finally we entered the railroad yards with many tracks crossing in a confusing pattern. There were passenger trains slowly coming in and out and some standing still, probably waiting to load or unload; switching engines were moving freight cars about. Many, if not most, railroads had terminals in Chicago. We eased slowly into the station and came to a gentle stop. Nobody seemed to be in too

much of a hurry getting off, including myself, but since my seat was quite close to the door I was one of the first ones on to the long walkway into the depot.

Even though I was not hungry, it seemed that I should get some breakfast in the station, although I knew it would be expensive compared to an outside restaurant. So I paid the outrageous price of a quarter for one sweet roll and a cup of coffee. Starting for the street door I said to myself, "Wedemeyer, you are going to have to take a taxi to find the place where your appointment is, and taxis are expensive, so be careful."

Just outside the station door, there were half a dozen taxis lined up at the curb. Each was a different make and model, no two were painted alike and none of them had meters. This was before the era of large taxi fleets with meters to ensure that the customers would be charged equally. As I approached the first one, the driver, who was already on the sidewalk, said, "Where to, sir?"

"Just a minute," I said. "How much will you charge to get me to"-- and I gave him the name of the building and street address.

"Three sixty," he quickly replied, and opened the door for me to get in.

I said, "I can't afford that much."

He slammed the door disgustedly and said, "Try one of the other taxis."

I did and each one was a little cheaper, but still, too much. Finally, reaching the last cab, a young man about my age said, "Taxi, sir?"

I said to him, "Fella, I am pretty hard up, but have the promise of a job on an ore carrier from a man in an office in this location. If I can't afford your taxi, I would appreciate your telling me how to get there. I have plenty of time, so if it isn't too far, I will walk to it."

"How about seventy-five cents?" he said.

"I can just handle that," I said, and got in. I don't recall either the

name of the building or the address, but it was quite a distance. When we got there, I reached in my pocket and pulled out a hand full of change. I paid the fare with a half dollar and a quarter, and then wanting to show my thanks, I tipped him a dime, leaving a nickel and some pennies in my hand. He thanked me and wished me luck. I have often wished in later years that I might meet him and tell him how grateful I was for his kindness that day, when I needed it so badly.

Once inside the building, I took the elevator to the sixth floor and found the office with no trouble. But a sign on the door indicated that the office opened at 9:00 a.m. and it was then only about 8:30, so I had a while to wait. I was glad to be early rather than late. Now that I was really there, I relaxed a bit and felt a little sleepy, so I sat on the floor in front of the door with my back against one side of the door and my feet flat on the floor with the toe ends of my shoes against the other. That forced my knees upward. I shoved my valise under my knees and put my rain coat over them and in this secure position fell asleep.

I can't say that my important man woke me up, but the sound of his footsteps approaching me did. He was very pleasant and made some remark about it being better to be early than late. He checked with me to make sure that I was the sender of the telegram he received yesterday afternoon. Needless to say, I became quickly alert, handed him the wire he had sent me and my First Class Commercial Operators License. He pushed the usual form toward me and said I could fill it out right there on his desk.

He and I were the only ones in his office at that time. He typed a form himself and asked me to sign it at the bottom. I suppose it was a contract which stated clearly that I was to serve aboard the Great Lakes ore carrier W.H.MC GEAN

as cheif and only radio operator and deckhand. He gave me a copy and said to give it to the First Mate when I went aboard. This was the same as signing on aboard and also identified me properly. However, if the mate wanted me to sign on again, it was alright to do so.

The man also gave me another slip and said, "Take this to the guard at the gate of the Wisconsin Steel Mills at South Chicago and he will direct you to the W.H. MC GEAN. It's only going to cost you twenty cents to get there, but it's a very long street car ride. You have plenty of time to get there because they don't plan to cast off until late in the afternoon."

"Is there any particular street car that I take?" I asked.

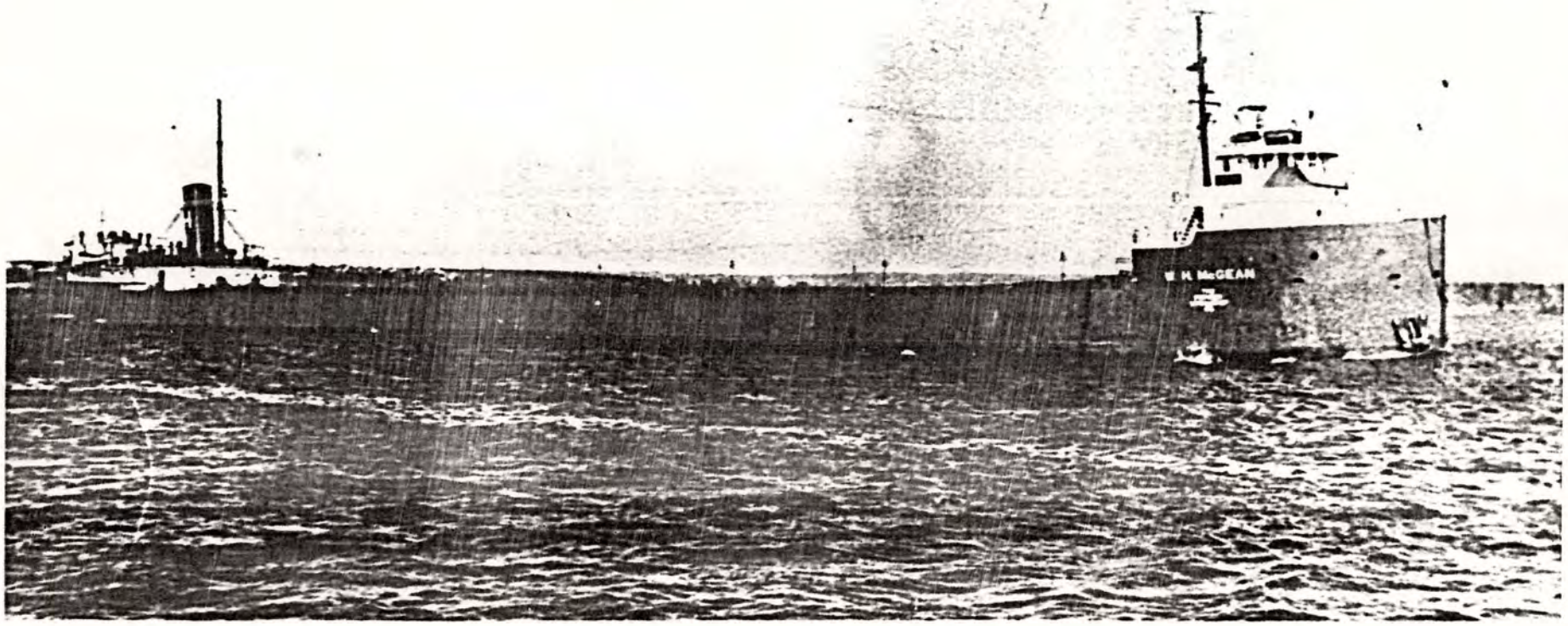
"No," he said. "Just take the first one that comes along heading South, which is to your right as you go out the front door of this building. You won't have to wait too long. They come along quite frequently. Once you get on, stay on until you come to the end of the line. You will know because the car turns around, ready for the long trip back, and anyway the conductor will tell you. Tell him you want to get onto the first car heading south on the next street car system. There may be one waiting. Get on that one and stay on and tell the conductor you want to get off at the Wisconsin Steel Mills. He will see to it that you do." I stood up, shook hands with the man, who surprised me a bit by saying,"So long, Sparks, and good luck." I thanked him and left.

I had only to wait a few minutes when the trolley came along and I got aboard for what was to be the longest street car ride of my life. We stopped at almost every corner for a long way and I got to see a lot of Chicago and South Chicago. It could not be described as being outstanding in appearence. I also set another personal record, which I never surpassed, which was "the longest street car ride for the money"—twenty cents!

When I checked with the old guard at the steel mill gate, he must have concluded that I was too well dressed to be a deckhand and too young to be an officer. He said, "Good afternoon. You must be the new Sparks for the MC GEAN."

"Yes sir, I am," I replied. "How do I get to the MC GEAN?" He was very pleasant and gave me the directions, which were simple enough, but I walked the entire length of the steel mill before sighting her. She was still unloading a cargo of iron ore, and was moored with her bow practically up against the mill in a specially built basin with concrete walls and room enough for four ore carriers at one time. There was a clam bucket arrangement that ran on rails high above an ore pile, operated so that the iron ore was constantly being moved into the mill for processing into steel. The whole operation was quite impressive.

Going aboard, I soon located and reported to the First Mate who greeted me pleasantly as I handed him the sheet the RCA man had given me. Looking at it briefly, he said, "Okay, Sparks, I'll show you to your quarters and radio equipment, both in the same cabin." They were in a rather long and relatively narrow cabin between a fore and aft passage way and the starboard hull, located in the after section of the foreward superstructure below the bridge. The Captain's and Mate's quarters were also in this superstructure. My bunk was located with plenty of room for my quenched gap spark transmitter and standard crystal detector receiver in the remaining space. Sitting at my operating table I looked aft with a clear view over all the hatches to the after superstructure. There was also a porthole in the far end of my cabin in the starboard hull. Altogether, I liked the arrangement. It was well designed. The Mate said to me, "We have mess at 6 a.m., noon and 6 p.m., served in the after section, but if you get down there by 7:30 a.m. they will still serve you breakfast. To make it easy for you, I will order wheelsman "Red" Crooks to wake you at seven each morning. That will give you time enough to get down there."



W.H. Mc Gean -George Wedemeyer Radio Opr summer 1923.
Call WMIO

"Thank you very much, Chief," I replied. "And please let me know if certain things are required of me at any particular time."

"Okay, Sparks, I will, and since we are not going to cast off for at least three hours, why don't you take a walking tour through the steel mill? It's really quite interesting. See that door at the top of that outside stairway? Just go in there and you will find a metal walkway with railings that will give you a pretty good tour of the mill. Just read the signs and follow the arrows and you will finally get back to the same door."

I did and it was very interesting, as a tour of any steel mill is. I particularly remember a bank of a half dozen large steam engines with very large fly wheels. At irregular intervals one or more of them would start, run a short time and stop. The thing that impressed me most was that they were absolutely silent. Where the steam came from and what kind of machinery was operated by them I couldn't see and never knew.

When I got back aboard they were about finished with our unloading. The Mate told me that it was time to get the aerial back up, and he sent a seaman to help me. I was pleased that he believed me to be experienced enough to understand his order, which, of course, I was because I had similar experiences aboard the ocean freighters PULASKI and ELIZABETH.

The procedure was that as soon as it was known on which side of the vessel the loading or unloading was scheduled, the wireless or radio aerial would be lowered at both ends far enough so that it could be pulled over and made fast to the rail opposite from the loading side. In this way it would be completely out of the way of booms, derricks and clam buckets whenever the vessel was being loaded or unloaded. It was then pulled back up in place when the operation was

finished. The aerial on the MC GEAN was two strands of heavy guage stranded phosphor bronze wire having great tensile strength and excellent electrical conductivity. Each wire end was made fast through a hole in one end of an aerial strain insulator, with another equally strong wire through the other end of the insulator. They were made fast to the spreader which kept the two wires about ten feet apart when the aerial was pulled back up in position between the forward and after masts. Heavy lead wires were connected to the forward ends of the aerial wires and joined together in a "V" and then run to the sturdy, highly insulated connection of the radio equipment inside. There were also halyards from each end of the spreaders made fast to keep the spreaders level. The whole outside aerial system was ruggedly constructed and designed to withstand gale force winds. Since the aerial was suspended between two spars or masts, and each of them was at least a hundred feet from their end of the vessel, and since the MC GEAN was five hundred feet long, I estimated that the aerial was at least three hundred feet long, a bit longer than a football field.

The MC GEAN was considered a giant back in her day. However, there were quite a number of other ships of her size in service, and many others almost as big. These vessels had their engines in the stern. They were sometimes referred to as bulk carriers, but more often simply as ore boats. Some few of them carried limestone and wheat, but most of them handled iron ore to keep the great steel mills of the lower Lakes operating. There were some other vessels for special cargoes. It is interesting to note that Great Lakes vessels were rarely referred to as ships, but invariably as boats.

In 1923, there was a great deal of shipping on the Lakes involving a lot of different kinds of vessels. There was the "whaleback" with a rounded top hull (looking something like a submarine that has surfaced) with various superstructures, some designed for passengers and some for freight. They eventually lost

favor and dissappeared from the scene. Then there were ferry boats crossing the Detroit River to Windsor, Canada; ferry boats carrying autos and people across Lake Michigan from Luddington to Milwaukee; five ferries moving railroad cars and a few autos from Frankfort across Lake Michigan to Manitowoc and Kewaunee, Wisconsin, and to Menominee and Manistique, Michigan. Ferries carried autos and vacationers from Mackinaw City and there were ferries for people to Mackinaw Island, where no autos were allowed. There were many other ferries in various locations.

There were the passenger boats with overnight accomodations, between Detroit, Cleveland and Buffalo. They were usually referred to as the D&C boats. Then there were excursion boats, especially out of Detroit and Chicago as well as other cities all around the Lakes. There were the large cruise-type ships, the NORTH AMERICAN, SOUTH AMERICAN and SAVANNAH of the Georgian Bay Line. All made extensive cruises, but were seldom referred to as "ships". There were scheduled trips across lower Lake Michigan from Chicago to Benton Harbor, Michigan, made aboard very seaworthy vessels with no overnight accomodations, since the trips were normally made in some five hours.

One of the unique ferry services was the Bob-Lo boats, which were excursion boats running between Detroit and Bob-Lo Island, a recreation park in Canadian waters. It took about an hour and a half each way. Naturally, there were tugs around the harbors to assist some of the big boats in difficult situations, to help towing barges.

There were numerous private boats of all kinds, both large and small, powered by sail or motor, everything from a small, single sail 16-footer up to 90-foot yachts with professional pilots, able to cope with sudden and unexpected Lake squalls they might encounter. Most of these were normally based in the big

port docking areas, but might also be found in any number of smaller locations along some parts of Michigan's 3,000 mile shore line, plus that of Illinois and Wisconsin on the western side of Lake Michigan. Then too, there were vessels of all kinds--freight, passenger, and private--belonging to our Canadian friends and based in many places along their great shoreline on every lake except Michigan. In short, there was an incredible amount of vessel traffic of just about every kind on the Great Lakes in 1923.

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We had cast off promptly and had eased slowly out of our basin, stern first, and before long had managed to head north, upbound for another load at the western end of Lake Superior. Taking a quick look shoreward, I noted we were passing the yellow Grosse Pointe light house at Evanston, north of Chicago. The Mate had several seamen unfastening the aerial along the forward, starboard rail and the bosun and a couple of seamen were doing likewise aft. Quite quickly they had the aerial up over the hatch covers with a couple of men at my end holding onto the very strong cable that would pull it up. The bosun was doing the same aft. The Mate said, "Sparks, walk midships and make sure your aerial isn't caught on any of the hatch covers. If it's okay, just signal with your hands to take her up, and the men at each end will. Then signal with your hands to get the spreaders level at both ends."

This I did. The haul-up cables and halyards were all properly secured to their cleats and that was that. By this time, we were pretty well out into Lake Michigan. The shoreline was getting dimmer and dimmer, indicating that we were getting into the proper shipping lane. We were on our way. The Mate came by and said, "Sparks, it's after six now, so you can go to mess," which I did. Oddly enough, I never did get to eat anything all day after the sweet roll and coffee I had in the depot that morning, which seemed a long time ago. Yet I couldn't

remember being hungry any time during the day.

As I entered the mess room, I passed through a screen door, an experience I never had on my previous ships. A young man in a white jacket greeted me by saying, "Good evening, Sparks. Welcome aboard. Sit anywhere you want and in the future you don't have to wear a jacket at the six o'clock mess."

The food was excellent, not only that night, but as long as I was aboard. Often, there were two entrees, plus fresh fruits and vegetables in season, which was quite out of the question on seagoing ships. I also appreciated having all the fresh drinking water I wanted. On warm days, they even put ice in it. I almost felt guilty drinking so much of it, recalling that the water we had on ocean freighters was drinkable, but not particularly refreshing, having been in large storage tanks as long as six months. Ice was out of the question aboard cargo ships in the early 1920's, and crews were ever alert to preserving their precious supply of potable water.

As I was finishing my second cup of excellent coffee, it struck me as time to get back and check my radio equipment. It was still daylight and had been a beautiful, bright day. A few boats were visible in the distance. Coming toward me was a rugged looking fellow, who somehow impressed me as being an experienced sailor. As he came closer, he smiled, put out his hand and said, "Welcome aboard, Sparks. Glad to have you with us. I'm wheelsman Red Crooks, the guy the Mate told to wake you up at seven every morning."

"Thanks," I replied. "I'll sure appreciate that." Sitting down at my operator's position in the radio room, I was looking straight aft and could clearly see all of the hatch covers way back to the after cabins. Reaching up, I pulled the rope that operated the lightning switch, disconnecting the aerial from being grounded to the hull and in turn connecting it to my radio equipment. First I

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threw the switch connecting our aerial to my receiver and tuned across the marine wavelengths. Signals from land stations and from other vessels came in clearly, so I was assured that my receiving set was working properly. I had listened long enough to establish that no vessel within range was in communication with either a land station or any other vessel with which my signals might interfere.

It was an international rule that no station should ever engage in the transmission of needless or superfluous signals, obviously because they might interfere with legitimate communications in progress. I had my transmitter "fired up" and ready to go, threw the aerial switch quickly from the receive to send position, kept my eye on the hot wire ammeter in the aerial circuit which would indicate an out-going transmitted signal, and then slowly sent the letter V, just once. It was three dots and a dash. I saw the meter register properly, and I quickly shut down my station. The radio equipment aboard the W. H. MC GEAN appeared to be in first class working condition.

By now the sun had pretty well set and I thought I would step out on deck for another look around. A fairly brisk breeze of clean, clear Lake air had arisen, cooling the oppressive heat of the day. I went back inside my cabin. About this time an unusual wave formation had developed, with some regular swells crosswise to our course, causing the bow and stern to swing up and down rather rapidly, like the way both ends of a long two-by-four carried on the shoulder of a walking workman would jiggle or vibrate up and down while the section on his shoulder remained stationary. I felt like my cabin was on one end of the giant two-by-four. It was something I had never experienced before. I found it hard to believe that I was getting sea sick, which I seldom did, even in fairly rough weather. I thought I better lay down on my bunk and just as I did, I felt extremely tired and sleepy, no doubt because of the long and hot day plus lack of

sleep the previous night. I recall being vaguely aware of the ship's pitching and must have gone to sleep quickly.

I was awakened by the sound of eight bells being struck on the bridge, and I thought it was eight o'clock in the evening. I was still fully dressed and got up to check the time and was a bit startled to find that the eight bells was for midnight. I thought to myself that I missed the time signals from Arlington, plus the weather and the news on my first night out. I took off my clothes and turned the covers down on my bunk and got properly in. I must have gone to sleep quickly again, because the next thing I knew my door was opened noisily, by Red Crooks, who said in a loud voice, "Good morning, Sparks. It's seven o'clock in the morning."

He then walked the length of my cabin and turned on a bright light and left, slamming the door moderately hard. It wouldn't be his fault if I didn't get up! I dressed quickly, rinsing my face and combing my hair. I could shave later. Of all things, I didn't want to be late getting to morning mess on my first day underway. The Chief Mate invited me to sit next to him. I thought it best to tell him of how I failed to report to the bridge because I overslept, and apologized for missing the time signals, weather and news from Arlington.

"No trouble, Sparks," he said, "but from now on be at your instruments about a quarter to ten in the evening. There is a telephone between your shack and the bridge and nowhere else. If the bridge wants you, it will ring and give you whatever instructions may be in order. Should some emergency come up where you feel the bridge should be notified immediately, you can call them by using the hand crank on the side of the phone in your cabin. As for news, get the base-ball scores for sure and anything else that seems important enough. This isn't like being out at sea, because we can pick up newspapers at either end of our trips and when we pass through the Sault St. Marie Locks. Also, as we pass down

Wheelsman "Red" Crooks 1923

the Detroit River, there is a guy who comes out, runs alongside with a launch, and sells Detroit papers."

We had a choice at breakfast of several juices, melon (which was in season), a selection of several dry and cooked cereals, ham or bacon and eggs any style, plus an assortment of rolls, toast, marmalade and coffee, tea if you wanted it or a glass of fresh milk. The Waldorf-Astoria never did any better. I remarked to the Mate, "Unless members of this crew have sailed aboard seagoing cargo ships, they can't appreciate how great the food is on this vessel."

"Thanks, Sparks," the Mate replied. "We do eat very well aboard the Hutchinson boats. Got to get underway with my work. See you later."

"Chief," I said as he was getting up to leave, "please tell me quickly if you feel that I am failing to do my job properly. I'm familiar with duties and procedures that go with being Sparks aboard a seagoing freighter, but this is a Great Lakes vessel and there may be ways I am not familiar with. So if you see me doing something wrong, tell me at once."

"Okay, Sparks, will do," he replied as he went out.

It was a beautiful morning as I started forward to my cabin. The water was reasonably smooth and the cross swells had gone. The sun was shining with good visibility. I couldn't see either shore so we must have been out halfway from both sides of Lake Michigan. The fresh, clean, sweet, cool air was wonderfully appreciated, especially after yesterday's hot, oppresive climate in South Chicago. Looking forward, I could see two heavily loaded ore carriers off our port bow, moving toward us, one behind the other. We would soon meet and pass. Giants though they were, their cargoes represented only a fraction of that endless stream of iron ore that flowed down to the great steel mills of the Lower Lakes, a stream that never stopped until the ice of winter blocked their way.

And what about us? We were just an empty part of the stream, bound north for another load.

I was a happy man as I entered my cabin. First, I shaved with my safety razor. What luxury to have fresh, instead of salt water to use, water that came out of a faucet like at home and drained overboard. I found too, that I could shower just a few feet down the companionway from my cabin with hot and cold fresh water. What luxury compared to the miserable salt water showers we had at sea. Lake sailors sure had it good, and most of them didn't know it, because they had never sailed on ocean freighters.

Since it was approaching 8:00 a.m. I went to my instruments and listened to the marine band. I heard several vessels and WGO in Chicago coming in strong. I intended to follow the same sea-going schedule by which I listened to 600 meters the first fifteen minutes of each hour. I refrained from anything but the most urgent transmission, in case some vessel might be sending out an SOS, or other important general information such as sudden change in weather, floating debris that might be in our shipping lane, etc. About 8:12 my phone rang. The Mate had told me that it was connected only to the bridge. I picked up the receiver quickly and said, "Radio room, Sparks speaking," hoping that I had said the right thing.

"This is the Mate. Come to the bridge at once for a message the Captain wants sent."

I responded and quickly made for the bridge. Arriving there, the Mate handed me a written message and asked me to read it back to the Captain out loud. I did, making sure to speak slowly and carefully. "Send it at once," said the Mate.

"Yes sir," I said, "but is this a sufficient address?"

"It is," he said. I returned to my cabin to send it at once. I gave the

message to WGO, who fortunately was not busy.

In order to appreciate this incident, I think it best to explain the rules of international and legal procedure covering wireless telegraph communication. First, before I called Chicago, I listened for a few minutes to be sure that WGO was not in communication with some vessel. I did not want to be guilty of interfering with a transmission. Thus assured I started my transmission with an international signal that was simply a warning signal that some station was to be called. Then, in continental code, I called W G O, repeating them three times, followed by the international signal meaning that I would next send my own call letters, which were W M I O. Next came a signal which meant that I had a message, followed by my call letters, once. WGO would come back with the same call procedure and, assuming that he received all of the message, he would signal "message received," followed by the designation for "end of communication." I would call him back just once, and sign my call, signifying that I understood.

This may all sound a little cumbersome, but these procedures were developed at an international convention, and considering difficulties that might affect a transmission, such as fading signals, interference from other signals and atmospheric difficulties, the procedures worked very well. With a simple message like I had just completed, both WGO and I transmitted very quickly and did follow the rules completely in short order. All this was done in telegraph code, not in voice, and while all shipboard and land station operators were excellent code operators, there was still always a recognizable difference in each operator's style, or "fist."

Just as I concluded my transmission with WGO, I received an odd call from another ore carrier somewhere in range. "Who is new operator?" he signaled. He had recognized me as a new "Sparks". I quickly identified myself in return,

giving him my "ham" call, 8BF. I doubt if at that time there were any operators aboard American vessels who were not "Hams". In 1923, there weren't too many of us and we all carried a "Ham" call book which was pretty small. My new friend, by checking my call, soon had my name and address. It is interesting to note that my unseen friend was well aware of the international regulation prohibiting the use of unnecessary or superflous signals. We therefore both made our signals as brief as possible. A land station could send us a "service message" which was equivalent to receiving a ticket from a police officer for a serious traffic violation. The "service message" would become a matter of record with the Department of Commerce and could be used against us when we went to renew our operator's license, which was required every two years. It was a reasonable regulation and naturally neither of us wanted to be charged with violating it.

By now it was about 8:30 and I would not listen in again on 600 meters for another half hour, so I decided to take a walk aft for a further look around. The overlapping metal hatch covers had been closed soon after loading. They were a rather dull steel grey in color, but because of their large area, they conveyed the impression, especially when the sun shone on them, of being almost white, looking aft over them from the window of my cabin. But as I walked aft this morning I saw that they had all been battened down securely with heavy canvas tarps that could best be described as dirty brown. Even though the sun was shining, the whole hatch cover area was a bit depressing but made the spotless white superstructure fore and aft seem even whiter.

Several sailors were busy painting the after cabin section. On ships, painting is never finished. By the time a job is completed on the after sections, it's time to start over again forward. While it's true that erosion is not as rapid on the Great Lakes as on the salty seas, painting nonetheless is almost a continuous job.

I took a quick look at the crew's quarters in the after section and it impressed me as being very good. Then I decided to go below and take a fair look at the engineroom, which I can only describe as spotless with everything metal polished brightly, including the floor plates on which the crew moved from place to place. The engineers all wore carpet slippers to keep from scratching the plates. When I went below to look things over, the engineer in charge stopped me on the bottom step of the ladder and told me to stay there. He explained that he did not want me putting marks on the plates with my rubber soled shoes. But I got a pretty good view from where I was standing.

Our vessel was steam driven with fuel oil heating the boilers. While I know very little about marine engines, I have always been impressed by their ponderous, fairly slow but unending movement to keep the ship propelled. Cargo vessels don't usually travel at more than ten or twelve knots, but they do keep going continuously. In addition to moving the vessel forward or backward, the engines operate the generators which produce the electricity and they power the vessel's pumps. The engines are most important whether we are made fast or under way, and the engineroom officers and men are always highly regarded by the crew for their ability to handle difficult mechanical problems in fair weather or foul.

I had time to get back to my receiver for the 9 a.m. listening watch on 600 meters. It didn't seem likely that I would pick up any distress signals, but there was always the possibility that some sudden weather change for the worse would be sent out as a general call. It was a bit difficult for me to realize that, in the past, some frightful storms had occured right where we were. On the way back, I met wheelsman Red Crooks, who greeted me pleasantly and said, "Sparks, can you spare a few minutes?"

"Not too many," I said, "because I am on listening watch at nine. What's

on your mind?"

"The Mate tells me that you have had some sea experience," said Red. "Is that right?"

"Yes," I said. "Not too much. I was aboard a couple of freighters and I made a trip to Panama as a passenger."

"Great," responded Red, extending his hand for a handshake. "There's a bond between saltwater sailors. We're definitely a superior class of bums."

It was comforting to me to know that someone on board thought me superior, if only as a bum --especially an upper crust bum. Red was an excellent seaman, very kind to me. He told me whenever some Lakes procedure was different from that at sea, so that I would not appear awkward. I was really grateful that he had been assigned to wake me every morning, which he always did most pleasantly. I was lucky that he considered me a friend.

Static was so bad that night that I didn't have a chance of getting NAA at Arlington for time signals, weather and news. Fortunately, the bridge did not request any of it. They didn't even ask me to find out about the weather ahead. They must have been confident of fair weather for tomorrow, when probably late in the day, we would reach Sault Ste.Marie, Michigan,referred to by the locals and shipping people simply as "The Soo". There we would pass through the famous locks which would lift us up some 22 feet to Lake Superior.

So I decided to write my mother and mail the letter while going through the locks. I told her how good the food was, how spick and span everything aboard was, how much I appreciated having fresh water to shower in, splendid wireless equipment I had to work with, what a fine crew we had and how the weather so far had been perfect. In all honesty, I had nothing but good things to report.

When Red woke me next morning, the weather was still unbelievably clear and bright. As I walked aft for breakfast and looked around, the almost cloudless sky was reflecting its magnificent shade of blue on the relatively smooth water. It was a beautiful day indeed and we had been lucky to have two in succession. By this time we were pretty well up to the top of Lake Michigan and were beginning a wide curve bearing eastward to go through the Straits of Mackinac (pronounced Mackinaw) between the top of Lower Michigan and the Upper Peninsula.

There were at that time quite a few fairly large ferry boats that crossed the Straits from Mackinaw City to St. Ignace. They carried automobiles and people. During the summer, at peak vacation season, many cars were heading north to vacation in the Upper Peninsula. The volume was sometimes more than all the ferries together could handle, causing a backup in traffic and long waits. Years later, with my wife and family in our car, we had to wait in line almost four hours to get across by ferry to our vacation spot in the Upper Peninsula.

As we were passing through the Straits, it is interesting to note that we were as far north of Chicago as Halifax, Nova Scotia is from Providence, Rhode Island, and in about the same latitudes. Also, we were closer to the North Pole than was Montreal. The area of the Great Lakes is indeed vast and important, and its history includes the sudden and unexplicable disappearance of ships.

As we continued our eastward passage, little did any of us ever dream that three decades later, in 1947, a magnificent bridge for year around auto traffic would be built across the Straits with towers on each side almost as high as the Washington Monument and with a passage of five miles from ramp to ramp. It would be called "The Mighty Mac" because it crossed the Mackinac Straits, high above the shipping lane.

S.S. W.H. MC GEAN - 1923

Continuing on east and a bit north for well over 30 miles, we turned into De Tour Passage, with De Tour Village on our port side. We had about another 35 miles to go, generally north through Munuscong Lake and a bit further through Lake Nicolet. Then we headed generally west into and along the St. Mary's River to reach the Soo Locks, through which we would climb up to Lake Superior. The weather was still bright and sunny, with many pleasant sights along both shores. Summer homes flying the American flag and the colorful British ensign were on the Canadian side. Both Canadian and American friends waved to us as we sailed by. The mainland border between the United States and Canada is over 3,800 miles long, making it the longest unarmed border in the world. I was happy indeed to be an American and enjoy the privilege of sailing safely along this boundary and knowing that our Canadian friends could too.

Continuing north, we finally made a steady turn to port, giving us a general westerly course along the St. Mary's River, which is created by overflow from Lake Superior. As we made this big swing, we could see several vessels ahead and about as many astern of us, all heading for the Locks.

Finally arriving at the basin at the foot of the Locks, we found that due to heavy traffic, we would have to wait our turn to get through. This delay, however brief, irritated the captains of all vessels because they were always under pressure to haul the greatest possible tonnage during the season.

Finally it was our turn to pass. The process was fairly complicated and required a lot of team work, which was impressive. I had time to step ashore briefly and mail my letter to my mother and get back aboard. It wasn't long before we were clear and out into Whitefish Bay. I was standing just outside my cabin, taking it all in, when Red came up to me and said, "Well, Sparks, you are now

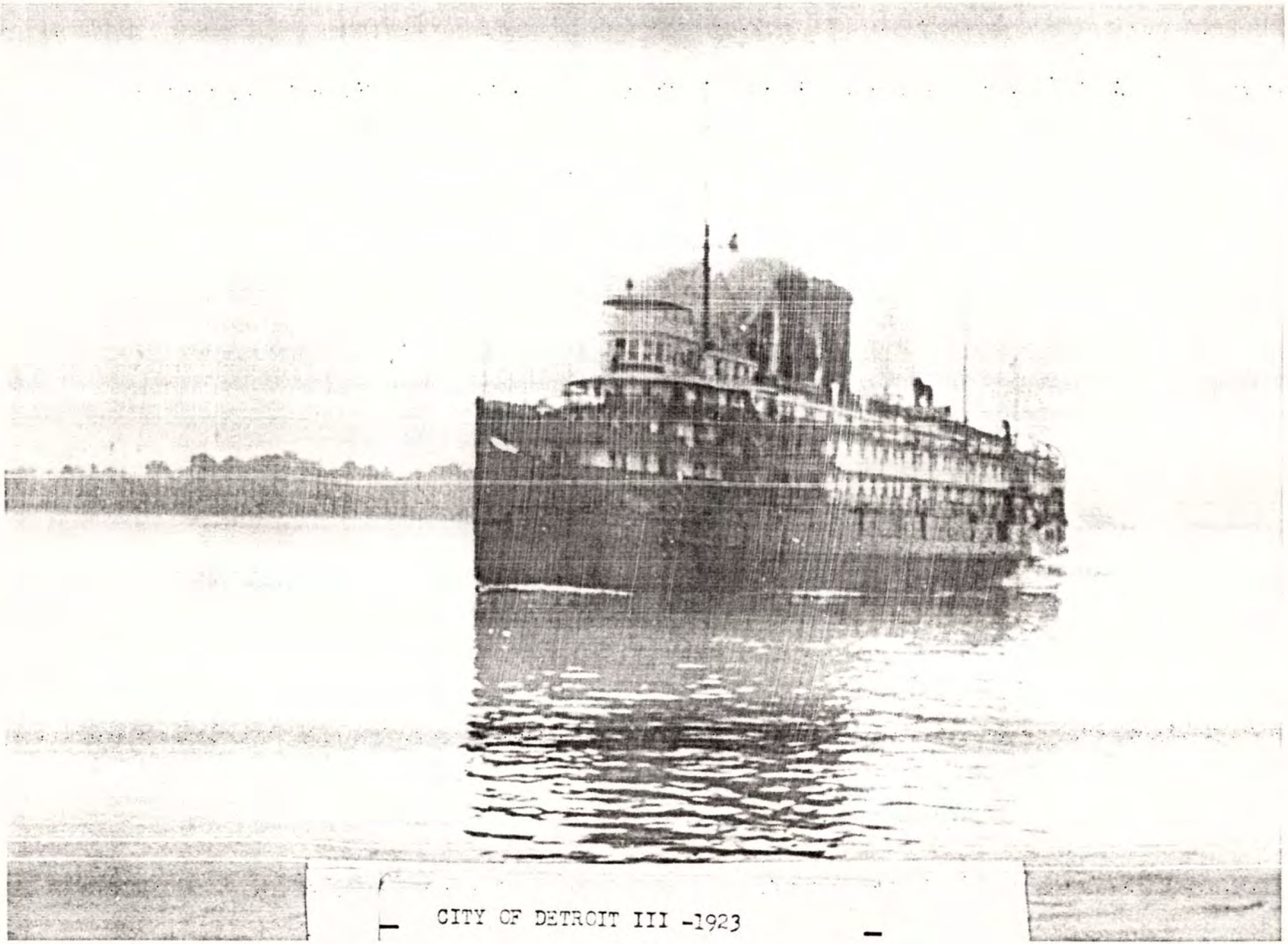
on Lake Superior. It is the biggest, deepest and coldest of all five of the Lakes, so whatever you do, don't fall overboard. Even if you are a good swimmer and I might be able to throw you a life ring quickly, you would probably die of the cold before we could get to you."

"And," continued Red, "you better get inside to your radio equipment right away so that the Old Man can reach you. I know he always sends a radio message to the Company whenever we clear the Soo Locks. I don't know why a telegram from the Soo isn't used, but for some reason he always communicates by radio."

"Thanks a million, Red," I said. "You saved me from looking bad to the Old Man on my first trip under him." I went immediately to my instruments just in time to answer my telephone from the bridge. I was summoned above, where the Old Man gave me a message to send. I had to wait my turn on the air and finally sent the message through the Canadian Soo station VBB.

By this time, we were pretty well into the lake with a couple of boats ahead of us and a few behind. We were all heading westward into the sunset, bound for Superior, Wisconsin or Duluth, Minnesota, to take on loads of more iron ore. Coming toward us and passing us were other vessels well loaded and down bound, all part of that seemingly endless stream of ore for the hungry steel mills of the lower Lakes. Altogether it was a truly significant and efficient operation, and it was pleasant to know that we were really a part of it. The sun set at the end of another perfect day. The water was so smooth that it almost seemed that we were standing still. But the feel of the throbbing engines under the deck reminded us that we were moving. The next morning dawned bright and clear, and it stayed that way all day, setting some kind of record for continuous fair weather during the run from Chicago to Duluth.

The Captain gave me a message to Duluth advising them of our estimated arrival time. The hatch covers were soon opened and my aerial taken down, getting



CITY OF DETROIT III -1923

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ready to load. As we were docking and our boat still moving, chutes were lowered to pour iron ore into our hold. There were many chutes that were moved along so that our vessel was loaded evenly. The whole process took four hours, which to me seemed remarkably fast considering that it had taken days to load the ocean cargo ships I had previously served aboard. Duluth was built on a rather steep incline from the ore docks and I didn't see anything that appeared interesting. I did not go ashore. My vessel was soon loaded and it eased out into the shipping channel, getting underway for our down bound trip. The crew was busy securing the hatch covers. Several experienced crew members were assigned to me to get our radio aerial back up again. Aside from putting the heavy brown canvas tarps securely over the hatches, we were ready for any weather we might encounter. Eventually, we had a cloudy day with a moderate breeze and occasional showers.

It had long been accepted by radio men that Lake Superior was a poor area for radio transmission and reception. For some reason, signals of a given power simply would not carry here nearly as far as they would most anywhere else. The generally accepted theory was that large deposits of iron ore below the bottom of the lake absorbed a large portion of transmitted signals and thus prevented them from carrying their normal distance.

We were pretty well out in the lake receiving signals from the powerful stations at Duluth and the Soo, just barely audible. The chances of either of them hearing our relatively low-powered transmitter was nil. I had my headphones on and suddenly heard the signals for "What ship is that off my port bow?" I took off my headset and went out on deck where I saw another ore carrier approaching us. I went back into my shack quickly, put on my headphones, started up my transmitter on low power, and gave my amateur call letters. The other "sparks" responded with his, and we proceeded to have a bit of a rag chewing session, posi-

tive that no one nearby could hear us. But we were wrong. While listening to my new friend as he finished, I heard, of all things, Port Arthur, the Canadian station up at the top of Lake Superior. I was surprised that he should come in so strong. I heard him say in code to a Canadian vessel, "Call me back later. I am being interefered with." I was amazed. I called Port Arthur at once, and apologized, saying I would stop at once. He came back with, "Okay and thanks," which was just about the ultimate in international courtesy, because I was completely wrong in using needless signals which interfered with legitimate communication. The Port Arthur operator could quite properly have sent me a Service Message of complaint which would be sent to our U. S. Department of Commerce with a mark against me. But he didn't, possibly because he realized we were experiencing freakish transmission conditions. In any case, whatever his reasons, I have been forever grateful to the Canadian operator for his kindness.

Next day we passed through the Soo Locks without delay and were soon down bound with the current in the St. Mary's River. As always, it was a most interesting and pleasant trip. Clearing the De Tour Passage, we headed a bit east and then south into Lake Huron. At this point the Old Man had me send a message to the home office in Cleveland. After a few hours, we didn't see many vessels going either way. Then, in late afternoon, we sighted an upbound foreign ship, a rare sight indeed. We were quite sure she was not Canadian or American. Red said he thought she was flying a Scandanavian flag, but he couldn't be too sure which one. We wondered what cargo she was carrying, where she was bound and what kind of cargo she would pick up. She had come a very long way to reach her present position. She would have had to cross the Atlantic and sail a thousand miles down the St. Lawrence River to reach Montreal. Then she had to climb up and pass through 61 locks to reach Lake Erie. By the time she reached the Straits, she would be close to a thousand miles from Montreal.

Today there is a great deal of foreign commerce on the Great Lakes due to the magnificent cooperation between the United States and Canada in pooling their resources in building the Great Lakes Seaway, with fewer and larger locks permitting easy access to ships close to 750 feet long--ships from all over the world bound for Great Lakes ports. This is truly a great navigational accomplishment. In addition, the project included the construction of hydro-electric power plants along the seaway, using the endless flow of the great St. Lawrence River to operate them, with no cost for fuel.

Continuing down Lake Huron, we had bright clear weather which emphasized the water's intense shade of blue. As we approached the lower lake, we followed the markers showing us the way to the entrance to the St. Clair River. At this point, we passed under the appropriately named "Blue Water Bridge" which connected the cities of Sarnia, Ontario and Port Huron, Michigan. I had often heard that the passage of some 65 miles from Sarnia to Lake Erie required considerable skill and concentration on the part of the wheelsman and the Mate on watch. I therefore, concluded that it was in the best interest of the ship to have Red as wheelsman and the First Mate on watch as we rounded the difficult turn into the St. Clair River. A short distance down while getting back on course, the river current increased by almost four miles per hour, adding to our speed and requiring still more effort in getting us properly back on course. We were also meeting empty ore carriers heading north for another load. There were a lot of small craft on the river, some of them often crossing our forward course without too much clearance.

The trip down the river was most interesting and enjoyable, with summer homes and a few places of business on both sides. And like the St. Mary's River, flags lent a pleasant touch of color on both shores. Occasionally people waved to us, especially children, and sometimes a crew member from an upbound empty ore

carrier. I would answer by waving my handkerchief so they would be sure to see my response.

About half way down, we passed St. Clair, Marine City, and finally Algonac, all on the Michigan side. The current diminished in speed as we approached Lake St. Clair. When we finally left the river and sailed into the lake, it gave the wheelsman and the mate a sense of relief to see the large body of water ahead. However, they well knew they must follow the course markers carefully to avoid running aground with a full load, especially in some of the channels that required frequent dredging.

As we left Lake St. Clair passing Peche Island, with Windmill Point, Michigan, on our starboard, we were entering the Detroit River, at which point there was a current of about two miles per hour. Windmill Point, just north of Detroit, was the site of the commercial radio station with the call letters NRQ. I had spent many hours listening to this station with my ham radio in Ann Arbor to increase my ability to receive fast code signals in dots and dashes. NRQ was an old friend that helped me to become proficient enough to get my First Class Commercial Operators Liscense.

After a time, we discerned the Detroit skyline coming up on our right. Finally we reached the point at which Detroit is on one side of the lake and Windsor, Canada, on the other. Ferry boats were busy crossing the river between them. It is interesting to note that, due to a bend in the river, Windsor is actually south of Detroit. In other words, Canada is south of the U.S. at that point.

Just as a light ore carrier was passing us upbound, a U.S. mailboat came alongside, delivering and picking up our mail for us. This was accomplished with

a bucket on the end of a line, let down and hauled up by us. Next, another launch came alongside selling Detroit newspapers. Again, we got the papers using the line and bucket method. As I remember, the newspaper seller didn't charge too much over the paper's regular price, and even though there were a lot of ore carriers and other types of vessels coming down the river, I could never figure out how the newspaper boatman made the operation pay. In any case, we appreciated his service.

As we continued southward we passed some big islands like Fighting Island and Grosse Isle. In due course, we found ourselves passing Amherstburg, Ontario and Bois Blanc Island, better known to Detroiters as Bob Lo Island, an elaborate amusement park reached by scheduled excursion boats from Detroit. Amherstburg represented the lower end of the Detroit River. Lake sailors generally agree that the passage between Sarnia and Amherstburg, going either way in good weather, required great care to stay in the channel. If closed in by fog, the passage ranged from difficult to impossible. If the fog was dense, ships would have to drop anchor and continue to blow their whistles at regular intervals until the fog lifted. Then they could proceed safely.

Fortunately, we had good clear weather and sailed into Lake Erie. Not too long afterwards, we met the boat CITY OF DETROIT III, heading up-river to Detroit. It was the first passenger boat we had seen since leaving Chicago. Red, who had just come off watch from the wheelhouse, leaned on the rail beside me. I said, "They tell me wheeling from Sarnia down to Amherstburg is pretty tough. How did you make out?"

"Pretty good, Sparks," he said. "I like wheeling with the First Mate. He's a good man and gives detailed orders when necessary, quick enough and so you can understand them."

Then he said, "Sparks, can you box the compass?"

"No," I replied, "not more than the usual eight points."

"You and me are the only salt water sailors aboard," Red said, "and all salt water sailors can box the compass, so I'm going to teach you. How about going into your cabin right now? I know you got a picture of the compass on your operating table."

"Okay," I said, and we did.

Once inside, Red said, "We will take the first half today and the other half later." He explained why the compass designations were used and made me recite them back to him. "Now," he said, "keep looking at the chart and repeating them and I will see how many you remember." I followed Red's instructions diligently and within a couple of days, I could call off the sixteen points. "Okay," said Red, "now I will call off the positions, and without looking at the chart, you tell me which other two positions are on either side." This wasn't as easy as it sounded, and it took a couple of days of practice for me to get Red's approval. Finally when I could pass Red's standards, he held out his hand and said, "Put her there, Sparks. You are now a full fledged member of the seagoing sailors fraternity."

I could never really figure it out, but if it made Red happy, it was alright with me. Red was a good friend and a remarkable person. In my personal judgement, he could have become an officer aboard ship, but he didn't want any type of authority over the deckhands. He was an outstanding seaman. He told me that he had once been in the Navy and had great respect for rules and tradition.

We had, at that time, in our crew a bosun who could not be accused of being incompetent. He knew his job and was a hard worker, but when it came to handling men, he was not good and was very sarcastic. One day he was supervising some deck

work involving several seamen, one of whom was of Viking ancestry, a powerfully built, good natured, experienced deckhand. It seems the bosun didn't approve of the way that this man was doing his work. Just as Red and I walked by, the bosun needlessly berated our "Viking", who never looked up, kept on coiling a line neatly and said loudly, "Bosun, you ever talk to me like that again and I'll throw you over the side." He meant it, too!

Red and I kept walking and said nothing. The deckhand's remarks struck me as frightening. Red, on the other hand, said, "Ain't that a disgrace? I know the bosun shouldn't have spoken like that, but for a deckhand to talk back to his bosun that way--what are things coming to?" Red's Navy training and his Merchant Marine discipline were just too engrained. I thought it best for me not to comment, and I didn't. Red was one of those individuals occasionally encountered in the Armed Forces or the Merchant Marine who was exceptionally good at his job, and gave every indication of being able to become an officer. But for some reason, known only to himself, he refused to. I asked Red about it one day and he told me that he didn't care to try. Yet he seemed to know all the shipboard rules, regulationsand procedures very well and was most helpful to me in my job.

As we approached the unloading pier in Conneaut with our aerial out of the way and the hatch covers open, the many specially designed clambucket unloaders started operating. They deposited each bucketfull of ore into slowly moving hopper cars on railroad tracks. This was an incredibly efficient operation, since we were completely unloaded and on our way in just under eight hours. To me, this was all the more impressive because, just about a year ago, it had taken three and a half days to unload five thousand tons of coal from the SS ELIZABETH at Portland, Maine. We had roughly three times that many tons of iron ore aboard the W.H. MC GEAN!

As we headed west along the length of Lake Erie, we encountered fairly good weather: some sunshine, some clouds, a bit of rain, light winds and sometimes a trace of fog. In due time, we made the long starboard arc to the north, picking up Amherstburg, the Detroit River, Lake St. Clair and the St. Clair River to Sarnia. The variable currents did not make it easy for our ship to get out of the top of the St. Clair River and make the turn at Sarnia. But we were finally upbound into Lake Huron, where we encountered quite a number of down bound carriers loaded with ore, all converging toward the bottom of Lake Huron, Sarnia and the St. Clair River.

The weather was generally overcast, and soon we sighted heavy fog ahead. We immediately slowed down, posted a watchman at the bow, and began blowing our whistle at regular intervals, as did all the other boats in the fog. Some of them sounded fairly close and probably were, although the dense fog could sometimes do strange things with the sound of a vessel's whistle. Our wheelsman couldn't see more than a hundred feet beyond the bow and the bow watchman couldn't do much better. Any vessel sailing into heavy fog on the Great Lakes in 1923 was in a most precarious situation, even in relatively open water, because there was not a lot of room between the upbound and downbound shipping lanes. There were also shore-to-shore boats sailing across these routes. We, of course, had no radar or direction finding equipment aboard.

Suddenly, we sailed into a completely clear area about a mile in diameter. Incredibly, we were in bright sunshine, but completely surrounded by a wall of heavy fog. We could still hear the fog whistles of the other boats. The whole situation was a bit crazy. Soon we sailed back into the dense fog. All that we or any of the other boats in the dense fog could do was follow our compass headings with extreme care and hope that we would not drift off course. We kept a sharp

lookout for any approaching boat. We didn't sight another boat, but could hear their mournful fog whistles off in the distance. Finally we sailed through the fog and found ourselves in the clear. Visibility was good but there was no more sunshine.

While the engines of our boat used oil for fuel, cooking was done on the galley stove that burned soft coal for heat. If this seems unreasonable, remember that at the time bottled gas had not yet been developed for use on cargo ships. The coal supply for the galley bin aboard the W.H. MC GEAN was low and needed to be replenished. One of the stations where we could obtain galley coal was De Tour Village at the entrance to De Tour Passage on our way to the Soo. Docking here meant making our vessel fast to a very short pier. Lines were heaved out fore and aft. The men on the pier hauled these in with heavy stranded steel mooring lines attached. Each line came off a reel operated by a donkey steam engine, one forward and one aft, which meant that they were a long way apart. With the donkey engine in reverse, the cable would unwind and could be pulled to loop over the bullards on the pier. Everything went smoothly aft, but the highly experienced Red, who was operating the forward engine, couldn't get his in reverse. The Captain screamed, "Stick out! Stick out!" which meant get it in reverse.

The men on the pier handling the forward line began letting out the line they already had and finally had to let go. About that time, a gust of wind caught us broadside, swinging us away from the pier. This was a serious situation because the men on the pier had no way of freeing the after cable, already secured to the bullard. In desperation, the Captain was screaming orders through a megaphone to the officer in charge of the after donkey engine, who finally had to let the whole cable run off its reel. The Old Man was understandably furious. Even a short delay in our schedule was a serious matter.

We had to swing about in a large circle and approach the pier again, as well as retrieve the cable that had run off the reel. This time another man was assigned to Red's donkey engine and we had no trouble at all. We completed the loading operation quickly.

Personally, I had an idea that Red thought that we needed a little excitment and intentionally failed to get his engine in reverse. I was sure that the Captain thought so, too, but Red stoutly maintained that he simply could not reverse his engine, in spite of his best efforts. Anyway, it was an interesting interlude.

The sun came out again just as we were departing, making our always interesting trip up to the Soo most enjoyable. In fact, we had fine weather all the way to Duluth.

The only time that I ever heard a lake vessel referred to as a ship rather than a boat, vessel or ore carrier was during our return through the Soo Locks. It was half past midnight when we cleared the locks and were well down the St. Mary's River. I was still dressed and had laid down on my bunk expecting a call from the Captain to send the usual message to the Company advising that we had cleared the locks. It was very quiet aboard and I had turned off my cabin lights. Then I heard a voice from shore saying "What ship is that?" The mate on watch answered quite clearly and slowly with a slight Scandanavian accent, "W.H. MC GEAN."

"Thank you," answered the checker ashore, and that was that. For some reason this brief but unexpected exchange deeply affected me. I don't know why, but I had a lump in my throat. I thought of that oft quoted phrase, "Ships that pass in the night." Hearing the eight bells for 4 a.m., I took off my shoes and finally turned in.

Red woke me as usual at seven the next morning. A few minutes later, my phone from the bridge rang, ordering me to pick up a message above and send it to the Company right away before going to early mess. The message confirmed our passage through the Soo. We swung westward through the Straits and then made a big curve to port, giving us a southern course down Lake Michigan past the Beaver Islands and out into open water. Visibility was fine and the weather fair.

Aboard the W.H. MC GEAN, I was well treated and always pleasantly greeted by the crew members whenever I met them. I knew quite a few of them by their first names. It was easy for them to like me because nobody was responsible to me for anything other than helping with the radio aerial, and that was really under the overall direction of the First Mate. I never had trouble with anyone. I was welcome in any part of the ship. When I took a quick trip around the boat to say hello to a few friends and perhaps have a brief conversation or two, I was never asked for money. To the best of my knowledge, none of the crew ever got into an argument or fight.

There was one older crewman from the engineroom called Uncle Ben. He was a very quiet, but friendly man who spent most of his time off watch making mats, table covers and other items out of a heavy cord he called carpet warp. The remarkable thing was that he did it all with his fingers—no needles, hooks or any kind of tool. His finished products, which took endless hours to complete, were excellent. I used to stop in and watch him once in a while. I always addressed him as Mr. Ben and asked if I might watch him work for a few minutes. He would nod in assent but seldom said anything. I thanked him when leaving after a brief stay.

One day when I dropped in to watch him, he was just fastening a metal buckle

to a beautifully made man's belt, which he had just finished. He handed it to me and said, "What do you think of it?"

"It's beautiful," I said, and I meant it.

"That's good," he said, "because I made it for you in case you liked it, and I wouldn't think of taking any of your money for it."

"Oh my, Mr. Ben," I replied. "That's most kind of you. Can I try it on right now?"

"Sure, I think it's the right size for you," he said. I took off my belt and put on Mr. Ben's handiwork. It was just the right length and the buckle worked perfectly. Thanking him again, I left and had to go back to my cabin with my original leather belt. I wore Uncle Ben's belt until I left the W.H. MC GEAN, and kept it to wear for many years after. I wish I still had it.

Back in my cabin I left my good leather belt and picked up my Brownie Box camera, which worked quite well as long as I had my back to the sun and enough light on the subject. I took several pictures and then went up to the wheelhouse. I had learned from Red that if we were in open water and good weather, I could visit this area if the Mate was not present with the wheelsman. This would have been unthinkable on any ocean ship, but was permissable aboard some Lakes vessels. So I waited until I saw the Mate come down from the bridge and head aft. Then I went above with my camera. Red wasn't at the wheel, but another shipmate, "Whitey" was. He greeted me pleasantly and I told him that I wanted to take his picture at the wheel. "Go ahead," he said.

After I did, he said, "Now, Sparks, let me take yours." I was at the wheel just long enough for him to take my picture. I did sign on as radio operator and deckhand, so as a deckhand I could function briefly as a wheelsman. I must have set some kind of record for the speed with which I worked up from deckhand to wheelsman!

SPARKS AT THE WHEEL

S.S. W.H. MC GEAN -1923

The weather had been good, but as summer began to move into fall, the sun shone less frequently and sometimes it rained. I might go aft to mess in clear weather, and when I came out, it could be raining fairly hard. It was well over a hundred yards back to my cabin, so I would wait and hope the rain would let up.

We made many passages to the western end of Lake Superior where we loaded ore, and then sailed east almost the full length of Lake Superior, headed for the steel mills at the "bottom" of either Lake Michigan or Lake Erie. Since we loaded in four hours and unloaded in eight, there wasn't time to do much of anything ashore at either end. It occurred to me that the crew might find this a bit trying after months of being aboard. To me, it was always interesting. The crew did have wellpaying jobs with decent, clean quarters and excellent food. They could save most of their pay unless they were sending it home. Moreover, they would receive a substantial bonus if they sailed for the whole season, which started with the April thaw--when powerful ice breakers broke through the winter ice—and ended with the December freeze. During fall, sailors would encounter cold and often stormy weather, especially in the upper lakes, where many vessels have been lost in November storms.

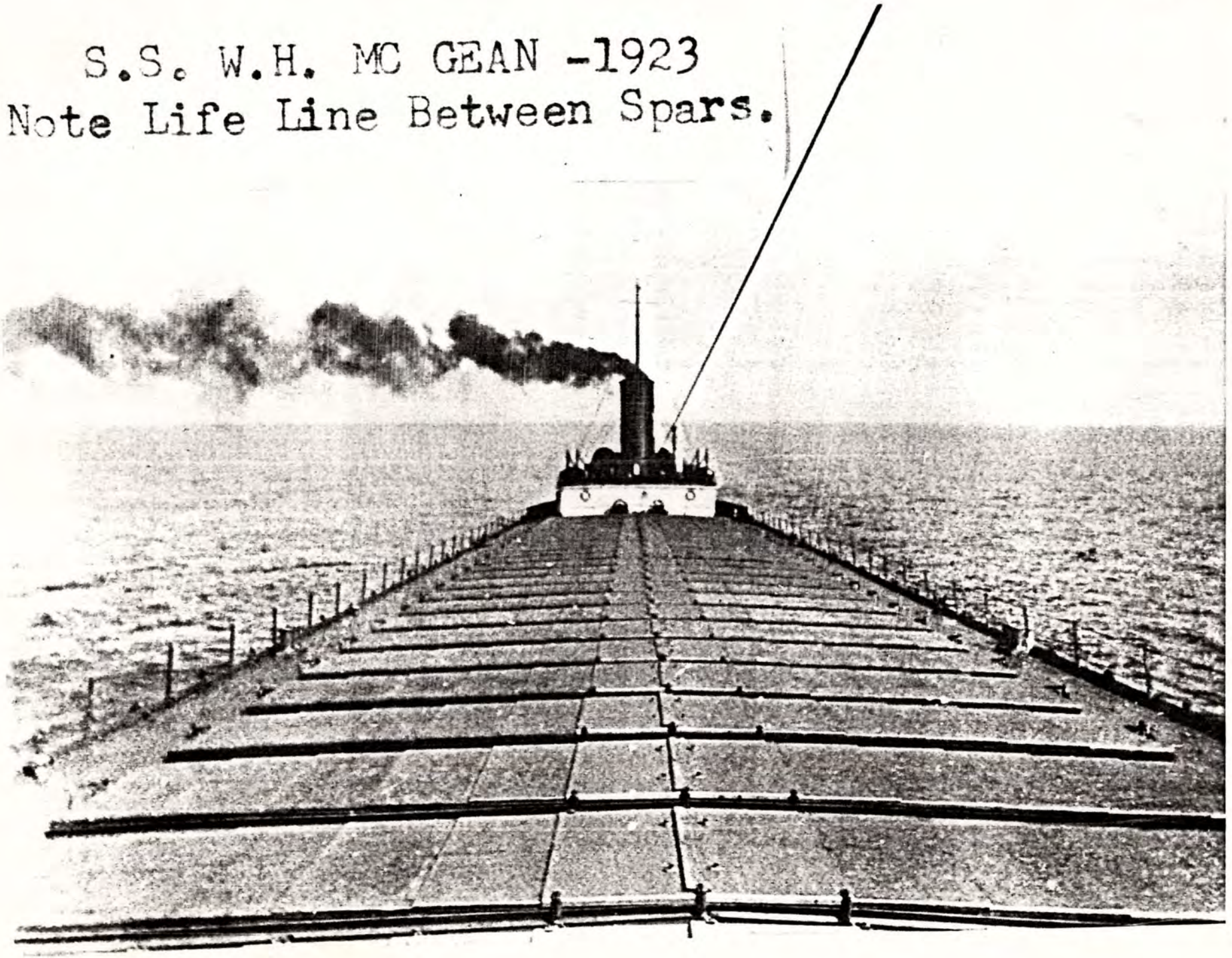
Continuing down Lake Michigan, we eventually saw Chicago on our starboard bow. It seemed strange passing big buildings on both sides after being out on the Lakes for a period of time. While we worked our way slowly up the canal, we took our aerial down and had our hatch covers open so that unloading could begin as soon as we had made fast. Actually, the unloading was underway before the last mooring lines were secured.

It was a dark and miserable day, with rain predicted. The industrial neighborhood of the mill was drab. Red said that there was nothing of interest anywhere near the mill and that it was a long walk to the street car line. So Red

and I and most of the crew who were off watch stayed aboard. I had a long visit with Red in my cabin where he entertained me with stories of his experiences in the Navy and the Merchant Marine. Red was a master story teller. We eventually went to mess. We had no trouble reaching the mess cabin, since the deck on the far side from the pier was clear. But walking aft we did get the feeling, however unreasonable, that the unloading buckets were reaching out to grab us as we walked by.

It was still daylight after evening mess. We cast off, completely unloaded with the hold swept clean. We put the aerial back up and closed the hatch covers. Soon we were back on the Lake heading north for another load. The season was getting well along and we might soon encounter cold and stormy weather. It was time to put up the "life line". This was simply a heavy stranded steel cable tightly stretched and securely made fast to spars at each end of the boat. Before putting the life line in place, it was threaded through a substantial number of steel rings which had a much smaller, but very strong cable securely attached to it with a ring at the opposite end. These cables were long enough so that a crewman could get a firm hold on the right ring and stretch out the cable, which would not quite reach the boat's rail, actually, a strong cable threaded through heavy steel posts mounted vertically along the sea side of the deck. There were quite a number of these lines at each end of the main cable between the spars. So if the weather was dangerously bad and I wanted to go aft to mess from my forward cabin, I would get a firm grip on the ring at the lower end of a line. As I worked my way aft, the other ring would slide along the life line and I had my left hand clear to grab the rail line. Upon reaching my destination, I would throw my ring over a cradle so that it would be ready for me when I returned. There were a lot of ring lines at both ends of the life line in case they might be needed. It was reassuring to know that the system was set up and ready for whenever it

S.S. W.H. MC GEAN -1923
Note Life Line Between Spars.



might be needed later in the season.

It was dark by the time we were well out in the Lake. The Captain did not request a weather report that night, but I tuned in NAA at Arlington, Virginia, anyway, following my usual routine. Eventually I went to bed. The next morning, as I walked aft to morning mess, I found that it was much colder. A moderate southwest wind was kicking up some white caps, and the waves were slapping fairly loud against our hull. By the time we turned up the passage to the Soo Locks, the leafy trees were in their best fall colors and were a pleasant sight to behold. Once we entered Lake Superior, the winds were definitely colder and stronger. Fall would soon be with us.

So far my experiences aboard the W.H. MC GEAN had been pleasant and without great incident. Serving as Sparks aboard a Lakes vessel was much different than on an oceangoing vessel, where I often spent hours on end getting bearings, sending position reports each noon, and sometimes having trouble getting a coastal station to work with. On the ocean, I also had to get weather reports from NAA every night, atmospheric conditions permitting, as well as occasionally receiving warnings about icebergs, shipping, etc.

I hope that I have not conveyed the idea that sailing a Great Lakes vessel is easy, because even in the best of summer weather, the responsibilities of the navigation officer on the bridge require a constant state of alertness. There are numerous narrow channels that must be cautiously navigated in the face of tricky cross currents, and then there are many small islands and shoals of which to be aware. Any or all of these factors become especially dangerous when a sudden fog closes in. The Great Lakes also are famous for storms that strike without warning and disappear just as quickly. Such storms can blow a ship off course, which is a serious problem since there is rarely more than forty miles from shore to shore

and not much room to navigate. It takes a great deal of knowledge and skill, acquired by long years of experience, to handle a ship on the Great Lakes.

I did not know it was my last trip "up for a load" when we left Lake Erie. The weather was not too good, but passable, with overcast skies and moderate winds. The weather report called for possible occasional showers, but as we passed Amherstberg starting our passage to Sarnia, the sun came out for awhile and revealed that the trees were beginning to turn to their fall colors. We had spots of sunshine all the way into Lake Huron, which helped us in navigating the passage. During the trip from De Tour to the Soo, we were somewhat protected from the wind. The fall colors were beautiful, but some of the leaves were already turning brown, meaning that they would soon drop off their trees. Winter was approaching. Some of the summer places had closed a bit early, so there were no flags flying from their poles.

The weather forecast I received from Arlington that night called for low temperatures and strong winds. This was correct. Next morning when I stepped on deck, I had to turn back into my cabin at once and put on my heavy sweater. Even so, the walk was a bit chilly and the waves were making themselves heard as they banged against our empty hull.

At Duluth, we loaded in less than the usual four hours and quickly got under way. This time, instead of simply closing the hatch covers quickly, the Mate and Bosun had every available man busy getting the heavy canvas tarps over the covers and securely battening them down. This reduced the possibility of water getting into the hold during rough weather. The Captain obviously anticipated some unfavorable weather, which indeed we did encounter just as we were heading well out into the lake. It was reassuring to know that all the hatch covers were well

secured, making them as water tight as possible. Being loaded, we could get along in heavy weather pretty well. We didn't have very much freeboard—the distance from the deck to the water.

The wind had increased sharply and we developed a slow roll. Now, instead of small waves slapping against our empty hull, bigger waves were banging against our loaded sides and, to some degree, on the deck, especially when we had rolled to the windward side. If they struck when our roll was at its maximum to the leeward side, not too much water came aboard, but it would get worse if the wind increased.

Time came for evening mess, and I had to go aft from my cabin to eat. The weather was very chilly and uncomfortable. I figured that if I went down the port side of the deck and timed it just right, I might reach the mess room without getting wet. This I did. But when I came out after mess, the situation had worsened. The chances of getting back to my cabin without getting wet didn't look too good. In fact, I was a bit apprehensive of getting back without mishap.

Once again, the ever helpful Red stepped up beside me and said, "Sparks, you had better grab a lifeline ring this time, just to be on the safe side. The deck can get pretty slippery when it is as wet as it is now." He got a ring down from the cradle and said, "Now hang on to this real tight, and if you slip, don't let go and keep your other hand on the rail line. Don't run 'cause you're more liable to slip. I'll watch you and come help if you get in trouble."

I got pretty well forward and was only wet up to my knees when a wave, greater than any so far, came overboard, soaked me to my waist. Looking back, Red was holding his hands together with arms outstretched giving me a signal of congratulations. I decided right then that I was not a man for the storms of November

aboard a Great Lakes ore carrier. Back in my cabin, I hung up my clothes to dry, and took a hot shower.

By this time it was getting dark. The wind was picking up and the waves were regularly going across and over the ship's hatches. I decided that there was nothing I could do about it, but decided that unless there was drastic improvement in the morning, I would skip breakfast.

The Captain did not request a weather report. He knew that if it didn't get much worse, we would soon reach the Soo and be out of the worst of it. I copied the weather from NAA Arlington, making note of the upper Great Lakes, which were getting gale force winds moderating later in the day. I could hear the screaming of the wind in our forward rigging and the banging of the waves against our bow. We were rolling considerably, but that didn't bother me and I slept soundly.

Red woke me on schedule next morning with a cheery "Good morning, Sparks. The weather has calmed down." Indeed it had. My clothes were still pretty damp, so I put on my good pants and shoes. Fortunately, I didn't need my sweater. The weather had warmed up considerably and the wind died down. We were no longer rolling, or taking spray and water on deck. Eventually we got to the Soo.

Passing through the locks, I received the usual call to come to the bridge for a message advising the company offices that we had cleared the Soo. The Mate handed me the message and said, "Sparks, this is your last trip down. Your replacement will come aboard at Conneaut. You've done a good job and we will report it that way. Your replacement has been away on an extended vacation. He has been with us since the beginning of the season."

I replied, "It has been a pleasure for me being aboard with you, and good

luck." Little did he realize how pleased I was to be leaving. It all worked out fine for me.

As we sailed into blue Lake Huron, the fates smiled on me and the sun came out. My final passage from Sarnia to Amherstburg and down into Lake Erie was most pleasant. When we reached Conneaut, the unloading began. I went to the Captain, who was very pleasant as he signed my license. I simply said, "Thank you, sir, and good luck," and he wished me the same.

By the time I got back to my cabin, the operator who was to replace me was there. He was most cordial and asked me if I had any trouble with the equipment. I assured him that it worked perfectly. We exchanged "ham" call letters, shook hands, and said goodbye. I didn't envy him being aboard in the stormy months ahead.

I took a train home, stopping in Toledo. During my time in the railroad car, I thought about the fact that here it was 1923, and I had the somewhat rare experience of having sailed on all five of the Great Lakes. Many sailors, and especially officers, spent their entire careers on the Great Lakes and never sailed on Lake Ontario, because no vessel over 250 feet long could get through the Welland Canal between Lake Erie and Lake Ontario. (In my case, I had sailed in 1920 on a brand new ship, the PULASKI, out of the Toledo Ship Yards, through Lake Erie and the Welland Canal, across the length of Lake Ontario, through the Cornwell Canal and eventually out to sea.)

Over the years I learned that the W.H. MC GEAN was sold to the Ford Motor Company in 1962 and was renamed the ROBERT S. MC NAMARA. In 1972, the vessel was again sold for use as a dock face on the Rouge River. I have not heard of her since.

CHAPTER XIII

ENTERING RADIO ELECTRONICS

By the time I became involved in radio, I had certainly gained valuable knowledge in the electronic communications field. By 1914, I had a spark transmitter without a license, which I didn't need at that time because of the low amount of power that I used. By 1919, I had my first amateur first class license, and within a year I had my commercial first class operator's license. By 1920 I had my first job aboard ship, the PULASKI. By 1923 my seagoing experience included service aboard two other vessels, the freighter ELIZABETH and the Great Lakes ore carrier W. H. MC GEAN.

I had managed to get in one year at the University of Virginia and one year at the University of Michigan in electrical engineering, and did a great deal of studying because I was highly intrigued with radio, which was developing fast.

About the end of my year at the University of Michigan, I became very ill with a ruptured appendix--peritonitis--and nearly died. Sulpha drugs weren't used at that time, so my recovery was slow and I never went back to school. Since my father, by that time, had died, I was in rather poor straits financially. But I did work in many different phases of radio in the ensuing years. I sold radios on commission; I serviced them as a repair man; I worked in a factory as an engineer and designer, designing models that were sold nationally--the old Arborphone Company, a name that doesn't mean much to many people anymore. I was superintendent in a factory; I worked in a couple of small radio stations. At one time three other hams and I in Ann Arbor pooled our amateur equipment together and started a broadcast station. The letters were WQAJ and we had a temporary commercial license. (If we could have hung on to it we would have all been millionaires, but of course we didn't know that.) We did a special broadcast for the newspaper, for which we received a small fee. I did most of the announcing.

This is to Certify that

GEORGE E. WEDEMEYER

is a Life Member of the

Veteran Wireless Operators Association, Inc.

PRESIDENT

SECRETARY

I taught in a trade school in Detroit and worked in a retail sales place there. And then I was offered a job in Monroe, Michigan, by a man to whom I took an immediate dislike (and my suspicions turned out to be justified). He paid me a lot of money, though I had to ask for it every week and the check usually bounced the first time. But anyway, I put up with it. Among other things, we did a lot of legitimate business with the rum runners who were active at that time during the Prohibition Era. I got to know their leaders, who trusted me because I wasn't in the rackets and wasn't "on the make," and I met some very interesting people, some of whom still look me up now and then. They were the nicest, easiest people to do business with, though they weren't so nice and easy with each other if they didn't keep their word. But that's another story.

Anyway, this fellow in Monroe had a radio station. He made radios and sold and serviced them. I still had my commercial first class license so I could help operate the station. I helped maintain and build it and acted as announcer part of the time, and designed new sets and sold them and collected past due accounts and everything you could think of. Finally, the whole thing became quite hopeless and we had a parting of the ways on a reasonably peaceful basis. I went into business for myself back home in Ann Arbor.

I had designed an all-electric radio that would work off a light socket without needing a storage battery and great big "B" batteries. I didn't invent this--it was a laboratory discovery known by the big companies, but they were pretty slow developing it. The battery sets were still selling well. What I had designed was my own and I figured I could make and sell them. I knew a few people in the trade, so I went into business for myself as a manufacturer. That sounds pretty big—except I didn't have any appreciable amount of money. I had saved about a thousand dollars from various jobs through the years. I borrowed another thou-

sand, so I did have some capital to work with. I started building and selling these radios, which we called "Wedemeyer Electrics." They were good. They were way ahead of the time. It was at least a year before the big companies came out with anything comparable. I had a pretty modest operation, actually, because we didn't have much money, but I sold my radios at retail and also some at wholesale in Detroit, and did very well.

And then, about that time, RCA announced to the world that they had patents on just about everything, that any device using a radio tube was in violation of their patents and they were prepared to defend their position, all of which was quite legal and proper. One of their representatives stopped in one day and told me to quit making radios. They were nice about it and said, "We don't want to break you. Just finish up what you have and the parts you have on order, but don't make any more after this." I had to agree, and that was the end of my manufacturing venture—a very successful one while it lasted. I still have one of my sets, and so help me, it still works. In 1978, I lent it to the curator of the Henry Ford Museum in Dearborn, Michigan, who has it on display as one of the first "plug-in" radios on the market.

As soon as I got into trade, it became apparent to me very quickly that my knowledge of business was woefully short, and I have been studying how to operate a business ever since. Nationally, electronic parts distributors have about the worst record of any group of businessmen in the country in terms of net profit on sales. This is on the basis of surveys conducted by the National Association of Wholesale Distributors. It's a rather natural development. If you think back, the first wireless men operated on a purely cooperative basis. They would help each other build their sets and teach each other code. They wouldn't think of accepting pay for helping each other. Suppose one fellow's aerial blew down.

The rest of the gang would come over and help him put it up and they would never take any pay for it. If some neighbor bought a receiver and it needed attention, he'd call up his Ham friend, who'd come over and fix it for him and wouldn't charge him anything. Well, years went by, and of course radio became big business and needed a lot of service. But because servicemen, for the most part, had been Hams, they found it very difficult to charge properly, if at all, for their services. This is one reason, at least in my opinion, why the service people were so long in becoming businessmen and realizing that they were entitled to reasonable compensation for their abilities.

Once World War II came along, there were great strides made in electronics, which had a lot to do with developing television and other types of equipment. There were a lot of men receiving technical training in the Armed Forces. By the time we came out of the war and TV began to take hold, it was a great deal more complicated than radio and it became necessary to train a lot of people. Technical schools and factories sprang up. Remember, the radio men succeeded the wireless men--for the most part they were wireless men--and the first television men were the former radio men.

In any event, as I have said so often before, there is a great spirit of friendship among those individuals in the electronic communication field, whether it be radio or television.

Radio electronics has been my career, and has been a most enjoyable and fulfilling occupation. My work has taken me on the seas and waterways and around our great nation. I've had the privilege and pleasure of watching--and sometimes helping-- radio electronics develop. Today I am still involved in this great business. It has been both my living and my life, and I can truly say that I wouldn't have skipped a moment of it for the world.